GLIDESCOPE®
Video Laryngoscopes
Designed for 1st Pass Success

GLIDESCOPE
AVL SYSTEM
OPERATIONS & MAINTENANCE MANUAL

VERATHON®

GLIDESCOPE
AVL SYSTEM
OPERATIONS & MAINTENANCE MANUAL

IMPORTANT

This manual is not intended for use in Canada. If you are in Canada, contact Verathon® Customer Care in order to access the appropriate *GlideScope AVL System Operations & Maintenance Manual* (version 0900-4521). For contact information, visit verathon.com/contact-us.

Effective: April 27, 2015

Caution: Federal (United States) law restricts this device to sale by or on the order of a physician.

For customers with GlideScope systems utilizing the GlideScope Video Monitor (version 0570-0338).

CONTACT INFORMATION

To obtain additional information regarding your GlideScope AVL system, please contact Verathon® Customer Care or visit verathon.com/contact-us.

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Information in this manual may change at any time without notice. For the most up-to-date information, contact Verathon Customer Care or your local representative.

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IMPORTANT INFORMATION

PRODUCT INFORMATION

The GlideScope® AVL Reusable and Single Use video laryngoscope systems are designed for "1st Pass Success." They provide a consistently clear view of a patient's airway, enabling quick intubations. The AVL design is based on the GlideScope GVL®, which is clinically proven to achieve a Cormack-Lehane Grade I or II view 99 percent of the time.*

STATEMENT OF INTENDED USE

The GlideScope AVL system is intended for use by qualified professionals to obtain a clear, unobstructed view of the airway and vocal cords for medical procedures.

ESSENTIAL PERFORMANCE

Essential performance is the system performance necessary to achieve freedom from unacceptable risk. The essential performance of the GlideScope AVL system is to provide a clear view of the vocal cords.

STATEMENT OF PRESCRIPTION

Caution: Federal (United States) law restricts this device to sale by or on the order of a physician.

The GlideScope AVL system should be used only by individuals who have been trained and authorized by a physician or used by healthcare providers who have been trained and authorized by the institution providing patient care.

NOTICE TO ALL USERS

Verathon® recommends that all users read this manual before using the GlideScope AVL system. Failure to do so may result in injury to the patient, compromise the performance of the system, and may void the system warranty.

Verathon recommends that new GlideScope users:

- Obtain instruction from a qualified individual
- Practice using the system on a mannequin before clinical use
- Acquire clinical experience on patients without airway abnormalities

* Cooper RM, Pacey JA, Bishop MJ, McCluskey SA. Early clinical experience with a new videolaryngoscope (GlideScope) in 728 patients. *Can J Anaesth.* 2005;52(2):191-198.

PRECAUTIONS & WARNINGS

Warnings indicate that injury, death, or other serious adverse reactions may result from use or misuse of the device. *Cautions* indicate that use or misuse of the device may cause a problem, such as a malfunction, failure, or damage to the product. Throughout the manual, pay attention to sections labeled *Important*, as these contain reminders or summaries of the following cautions as they apply to a specific component or use situation.

To ensure safe and reliable operation for the user and patient, please heed the following warnings and cautions.

PRECAUTIONS

CAUTION

Medical electrical equipment requires special precautions regarding electromagnetic compatibility (EMC) and must be installed and operated according to the instructions in this manual. For more information, see the Electromagnetic Compatibility section on page 68.

To maintain electromagnetic interference (EMI) within certified limits, the GlideScope AVL system must be used with the cables, components, and accessories specified or supplied by Verathon®. For additional information, see the System Parts & Accessories and Product Specifications sections. The use of accessories or cables other than those specified or supplied may result in increased emissions or decreased immunity of the system.

The GlideScope AVL system should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the system should be observed to verify normal operation in the configuration in which it will be used.

This device can radiate radio frequency energy and is very unlikely to cause harmful interference with other devices in the vicinity. There is no guarantee that interference will not occur in a particular installation. Evidence of interference may include degradation of performance in this device or other devices when operated simultaneously. If this occurs, try to correct the interference by using the following measures:

- Turn devices on and off in the vicinity to determine the source of interference
- Reorient or relocate this device or other devices
- Increase the separation between devices
- Connect the device to an outlet on a circuit different than the other device(s)
- Eliminate or reduce EMI with technical solutions (such as shielding)
- Purchase medical devices that comply with IEC 60601-1-2 EMC Standards

Be aware that portable and mobile radio frequency communications equipment (cellular phones, etc.) may affect medical electrical equipment; take appropriate precautions during operation.

CAUTION

Risk of permanent equipment damage. This product is sensitive to heat, which will cause damage to the electronics. Do not expose the system to temperatures above 60°C (140°F), and do not use autoclaves or pasteurizers. Use of such methods to disinfect the system will cause permanent device damage and void the warranty. For a list of approved cleaning procedures and products, see the Cleaning & Disinfecting chapter.

CAUTION

The video batons and video laryngoscopes contain electronics that could be damaged by ultrasonic and automated washing equipment. Do not use an ultrasonic device or automated washing equipment to clean this product.

CAUTION

When cleaning reusable video laryngoscopes and video batons, do not use metal brushes, abrasive brushes, scrub pads, or rigid tools. They will scratch the surface of the unit or the window protecting the camera and light, which may permanently damage the device.

CAUTION

Bleach may be used on the video batons, but pay special attention to stainless steel components, as bleach can corrode stainless steel.

CAUTION

Ensure that you do not use any abrasive substances, brushes, pads, or tools when cleaning the video monitor screen. The screen can be scratched, permanently damaging the device.

WARNINGS

WARNING

Several areas of the video laryngoscope or Stat that contact the patient can exceed 41°C (106°F) as part of normal operation:

- The first area is the light-emitting area surrounding the camera where the anti-fog feature is located. When used as indicated, continuous contact with this area is unlikely because, if tissue were to contact this area, the view would be lost and devices would need to be adjusted to regain the airway view.
- The second area is the area surrounding the camera, out of view of the camera. Continuous contact with this area is unlikely because the product is typically not held stationary for an extended period of time exceeding 1 minute.

If continuous contact is maintained for longer than 1 minute, it is possible to cause thermal damage such as a burn to the mucosal tissue.

Note: Typical intubations are less than 1 minute in duration.

WARNING

If the GlideScope Direct is powered on for an extended period of time, it is possible for the surface temperature to exceed 41°C at the tip of the blade where the lighting and camera are located.

WARNING

When you are guiding the endotracheal tube to the distal tip of the video laryngoscope, ensure that you are looking in the patient's mouth, not at the video monitor screen. Failure to do so may result in injury to the tonsils or soft palate.

WARNING

Before every use, ensure the instrument is operating correctly and has no sign of damage. Do not use this product if the device appears damaged.

To ensure patient safety, routinely inspect the GlideScope video laryngoscope blade before and after every use to ensure the blade is free of rough surfaces, sharp edges, cracks, protrusions, shell separation, surface delamination, or any other indication of wear. If found, do not use the damaged or worn blade, otherwise blade breakage may occur and could cause patient injury or death.

Always ensure that alternative airway management methods and equipment are readily available.

Report any suspected blade defects to Verathon® Customer Care at:

Phone: 800.331.2313 (U.S. and Canada)
425.867.1348 (International)

Email: customerservice@verathon.com

WARNING

AVL Reusable video laryngoscopes and the GlideScope Direct intubation trainer are delivered nonsterile and require cleaning and high-level disinfection prior to initial use.

WARNING

Because the product will likely be contaminated with human blood or body fluids capable of transmitting pathogens, all cleaning facilities must be in compliance with (U.S.) OSHA Standard 29 CFR 1910.1030 "Bloodborne Pathogens" or an equivalent standard. For more information, visit www.osha.gov.

WARNING

Ensure that you follow the manufacturer's instructions for handling and disposing of the cleaning and disinfection solutions provided in this manual.

WARNING

Availability of cleaning, disinfection, and sterilization products varies by country, and Verathon® is unable to test products in every market. For more information, please contact Verathon Customer Care at 1.800.331.2313 or your local representative. For contact information, visit verathon.com/contact-us.

WARNING

This product may only be cleaned, disinfected, or sterilized by using the approved low-temperature processes provided in this manual. Cleaning, disinfection, and sterilization methods listed are recommended by Verathon based on efficacy or compatibility with component materials.

WARNING

The reusable video laryngoscope is considered a semi-critical device intended to contact the airway. It must be thoroughly cleaned and undergo high-level disinfection after each use.

WARNING

Cleaning is critical to ensuring the component is ready for disinfection. Failure to properly clean the device could result in a contaminated instrument after completing the disinfection procedure.

When cleaning, ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen disinfection method to reach all the surfaces.

WARNING

Do not place the GlideScope AVL video baton or reusable video laryngoscope in the cradle if any of the components are contaminated.

WARNING

In order to maintain electrical safety, use only the provided, medical-approved power supply.

WARNING

To reduce the risk of electrical shock, use only the accessories and peripherals recommended by Verathon®.

WARNING

Electric shock hazard. Do not attempt to open the system components. This may cause serious injury to the operator or damage to the instrument and will void the warranty. Contact Verathon Customer Care for all servicing needs.

WARNING

No modification of this equipment is allowed.

WARNING

The external monitor must be safety-approved medical equipment.

WARNING

Use only a passive-type USB flash drive. Do not use USB drives powered by another external source.

PRODUCT DESCRIPTION

The GlideScope AVL system is an ideal tool for physicians and other healthcare professionals who need to effectively manage routine to difficult airways. It is useful for the intubation of normal airways, anterior airways, neonatal patients, obese patients, and patients with limited neck extension. Additionally, it is useful for teaching purposes, verification of endotracheal tube (ETT) placement, nasal intubation, and ETT exchange. The AVL is easy to learn, use, and teach. It is ideal for acute care settings and emergency environments. It also integrates into standard ED, OR, ICU, and NICU applications.

The GlideScope AVL system combines a high-resolution, full-color digital camera with an integrated LED light source and Reveal™ anti-fog feature. The AVL video batons or blades connect directly to a full-color, digital video monitor for real-time viewing.

The AVL system is recommended for use with an endotracheal tube stylet, particularly the GlideRite® Rigid Stylet, which complements the AVL blade angle.

GLIDESCOPE VIDEO MONITOR

The monitor can record video and photos directly to a USB flash drive for archiving and further review. The monitor has a DVI video output through an HDMI connector. It is recommended that you use the HDMI-to-DVI cable provided by Verathon® to connect to an external monitor that is approved for medical use. You can operate the AVL by connecting it to the medical-grade power supply provided by Verathon or by using the internal, rechargeable lithium-ion battery.

Verathon occasionally makes software updates available for the GlideScope video monitor. This manual documents the most current version of the GlideScope Video Monitor software. If your monitor does not function as described in this manual, or to determine if your software should be updated, contact Verathon Customer Care.

Figure 1. GlideScope Video Monitor

SINGLE USE SYSTEM

The AVL single-use system can be used with a choice of two video batons and multiple GVL® Stats. Single-use GVL Stats are offered in a comprehensive range of sizes, allowing clinicians to meet the particular requirements of patients ranging in size from preterm infants to morbidly obese adults.

The system may include the following components:

- GlideScope Video Monitor
- AVL Video Baton 1-2 (for neonatal patients and small children)
    - GVL 0 Stat (patients less than 1.5 kg)*
    - GVL 1 Stat (patients between 1.5–3.8 kg)*
    - GVL 2 Stat (patients between 1.8–10 kg)*
    - GVL 2.5 Stat (patients between 10–28 kg)*
- AVL Video Baton 3-4 (for use on children and adults)
    - GVL 3 Stat (patients between 10 kg–adult)*
    - GVL 4 Stat (patients between 40 kg–morbidly obese)*
- GlideRite® Rigid Stylet (recommended for use with the AVL Video Baton 3-4)

** Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.*

Figure 2. GlideScope AVL Single Use System

REUSABLE SYSTEM

AVL Reusable video laryngoscopes are designed to work with the GlideScope Video Monitor. The scopes incorporate a high-resolution digital camera and LED lighting to provide views of anterior airways. The system is recommended for use with an endotracheal tube stylet, particularly the GlideRite® Rigid Stylet.

The system may include the following components:

- GlideScope Video Monitor
- AVL reusable video laryngoscopes
    - GVL® 2 (patients between 4–20 kg)*
    - GVL 3 (patients between 10 kg–adult)*
    - GVL 4 (patients between 40 kg–morbidly obese)*
    - GVL 5 (patients between 40 kg–morbidly obese)*
- GlideRite Rigid Stylet (recommended)

** Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.*

Figure 3. GlideScope AVL Reusable System

GLIDESCOPE DIRECT INTUBATION TRAINER

The GlideScope Direct intubation trainer is designed to work with the GlideScope Video Monitor. The GlideScope Direct resembles a traditional Macintosh direct laryngoscope with the addition of a video camera near the end of the blade, permitting both direct laryngoscopy and a video display of the airway. This provides the user with a laryngeal view, permits mentoring by an instructor, and combined with the system monitor allows the image to be captured for documentation, quality control, and teaching.

The GlideScope Direct intubation trainer does not provide the same benefits of GlideScope AVL video laryngoscopes in settings when a line-of-sight cannot be achieved. Typically, these occur in patients with difficult (Cormack-Lehane grade 3 or 4) airways. It will, however, facilitate the instruction of direct laryngoscopy. Should the GlideScope Direct fail to provide an adequate laryngeal view, the airway manager can easily convert to a GlideScope AVL reusable blade or to a single-use video baton and GVL® Stat for an optimal view.

Figure 4. GlideScope Direct Intubation Trainer

SYSTEM PARTS & ACCESSORIES

The GlideScope AVL systems consist of the following components.

Table 1. System Components

<table>
<tr><th colspan="4">PARTS & ACCESSORIES</th></tr>
<tr><th colspan="4">Required Components</th></tr>
<tr><td colspan="2">GlideScope Video Monitor
 </td><td colspan="2">Video batons (for Single Use system only)
 </td></tr>
<tr><td colspan="4">GVL® Stat sizes 0, 1, 2, 2.5, 3, and 4 (for Single Use system only)
 </td></tr>
<tr><td colspan="4">AVL video laryngoscopes (for Reusable system only)
GVL 2 GVL 3 GVL 4 GVL 5
 </td></tr>
<tr><td colspan="2">Video monitor 12V DC power adapter
 </td><td colspan="2">Power cable
 </td></tr>
</table>

PARTS & ACCESSORIES		
Optional Components		
Mobile stand 	GlideRite® Rigid Stylet 	Universal accessory basket
	Cradle for reusable blade 	Cradle for video baton
GlideScope Direct 	IV pole mounting kit 	HDMI-to-DVI cable

LANGUAGE SETTINGS

The GlideScope Video Monitor software is available in a variety of languages. To change the language used on your system, you must install a new software version via a USB flash drive. For more information, contact Verathon® Customer Care or your local representative. For contact information, see verathon.com/contact-us.

VIDEO LARYNGOSCOPE COMPONENTS

Figure 5. AVL Reusable Video Laryngoscope Components

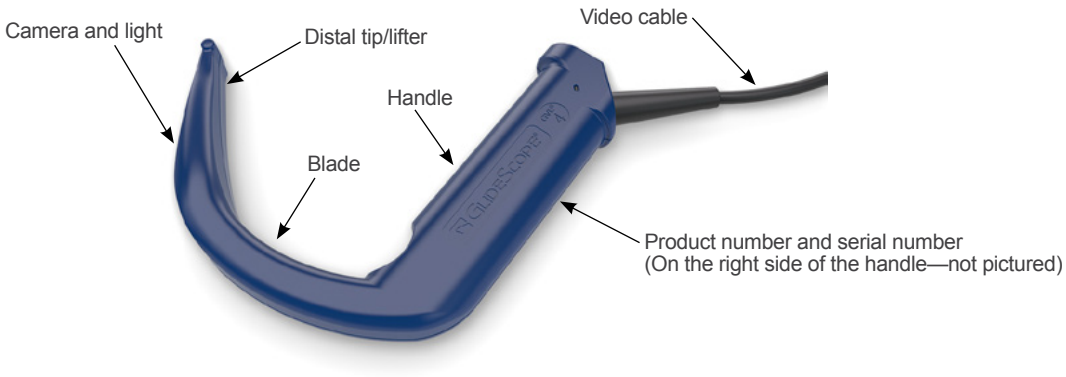


Figure 6. AVL Single Use Video Laryngoscope Components

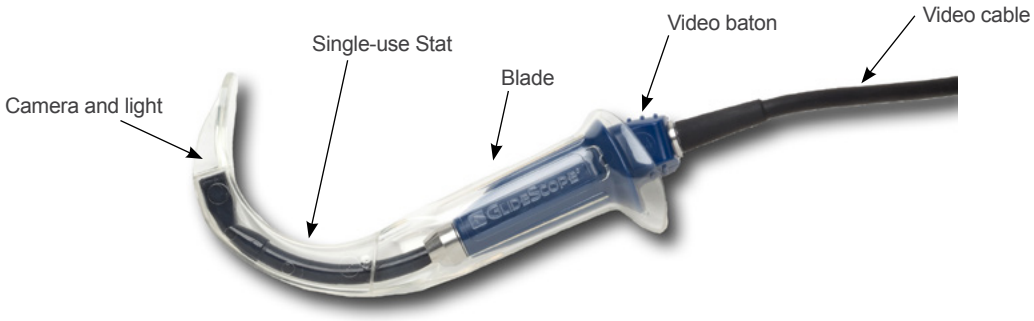


Figure 7. GlideScope Direct Intubation Trainer

BUTTONS, ICONS, & CONNECTIONS

The main component of the GlideScope AVL system is the digital, full-color monitor. The front of the monitor includes the screen and the buttons you use to operate the AVL system.

The back panel of the monitor includes the sockets and ports for connecting the power cord, the video cable, an HDMI-to-DVI cable for external video display, and a USB flash drive. When a socket or port is not in use, it is recommended that the rubber cap is inserted into the opening. This protects the exposed connectors from dust and other contamination. The back of the video monitor also features a mounting plate fitting that allows you to attach the monitor to a mobile stand or IV pole.

Figure 8. GlideScope Video Monitor Keypad

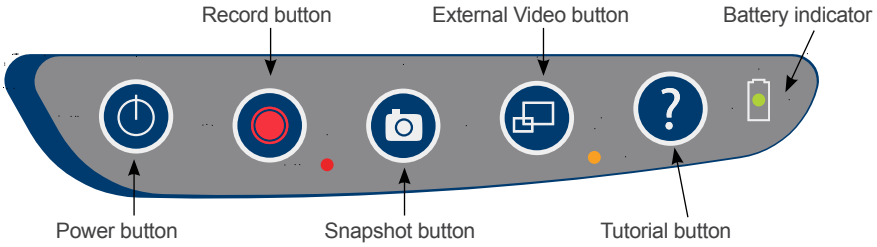


Table 2. Keypad Buttons

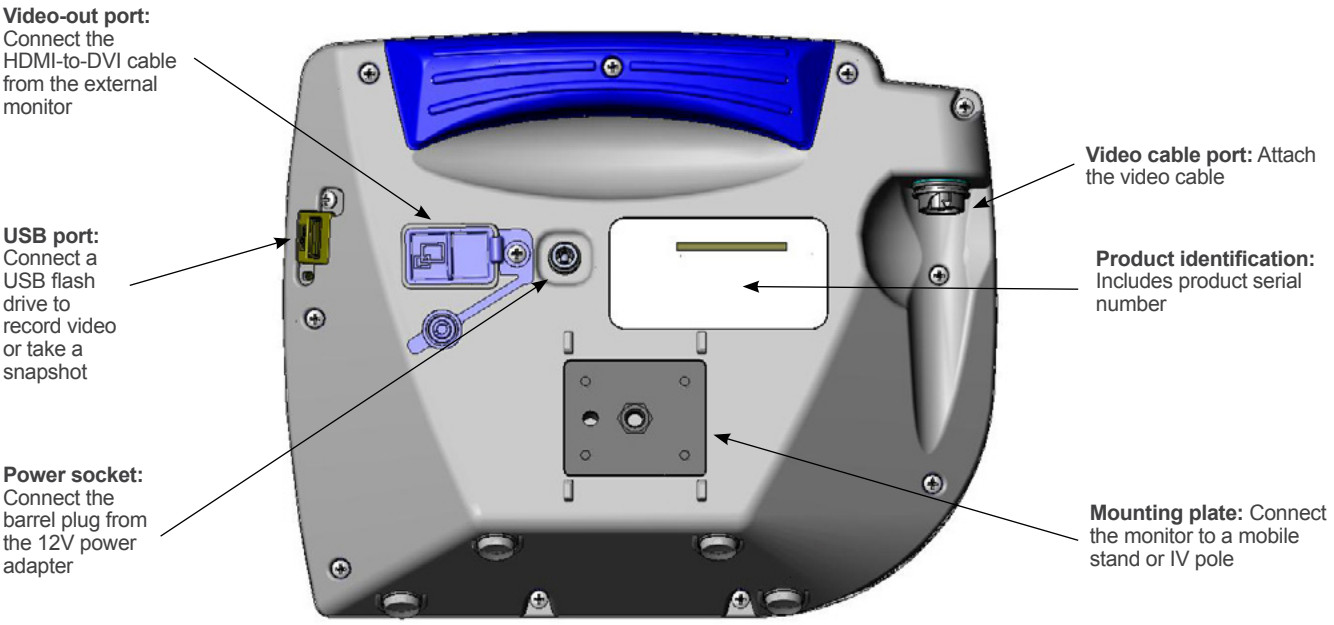
BUTTON	FUNCTION
	Power: Press and release to turn on the monitor. Press and hold to turn it off. *Note: If the monitor freezes at any time during use, press and hold the Power button for 10 seconds to reset the system.*
	Record: Press to start and stop recording directly to a USB flash drive that has been inserted in the USB port. When you are recording, the red LED indicator to the right of the button will be lit and the Recording icon will be shown on the screen. *Note: To record video, a USB flash drive must be inserted into the monitor USB port.*
	Snapshot: Press this button to save a snapshot of the live display to the USB flash drive. You may take a snapshot while video recording or independent of recording. *Note: To take a snapshot, a USB flash drive must be inserted into the monitor USB port.*
	External Video: Press to display video on an external monitor. The yellow LED to the right of the button will light up to indicate that the feature has been activated. Press the button again to deactivate the external video.
	Tutorial: If a USB flash drive is not inserted into the monitor, press and hold to access the video tutorial. If a USB flash drive is inserted into the monitor, press and hold to access the Playback menu. *Note: The Playback menu is only accessible if the GlideScope Video Monitor is operating software version 3.4 or higher and if a USB flash drive is inserted in the monitor.*
	Battery Indicator: LED is: **Green:** Unit fully charged **Red:** Unit charging **Flashing Red:** Indicates a problem with the battery. Charge for 6 hours, and if still flashing, contact Verathon®.

Table 3. On-Screen Icons

ICON	FUNCTION
	Battery Status: The remaining battery power is indicated by the Battery Status icon and the percentage above the icon. If the icon is red, the battery should be charged as soon as possible. (See Charge the Monitor Battery.) While the battery is being charged, a lightning bolt will be displayed alongside the Battery Status icon.
	Progress Confirmation: While the user is pressing a button, the operation is loading. If the button is released before the loading process is completed, the operation is canceled.
	Power-Down Countdown: The unit is about to turn off. If this is due to the Auto Power Off feature that saves battery life, pressing any button stops the power-down sequence. *Note: The Auto Power Off feature can be adjusted or disabled on the User Settings screen. For more info, see* Configure User Settings *on* page 26.
	USB Flash Drive: A USB flash drive is detected. While recording, a number next to the icon indicates approximately what percentage of the USB flash drive has been used. When the USB flash drive is full, recording stops.
	Incompatible USB Drive: The USB flash drive that is plugged into the monitor is not suitable for recording videos. (This normally occurs when using an older, inexpensive USB flash drive that is not capable of the speed necessary to save video in real time.)
	USB Flash Drive Not Found: A USB drive needs to be inserted into the USB port.
	Attach Video Cable: The video baton or video laryngoscope is not attached to the monitor.
	Recording: The system is recording video to the USB flash drive. *Note: Do not remove the USB flash drive while recording is in progress, or the recording will be lost.*
	Saving Snapshot: The system is saving a snapshot to USB flash drive. *Note: Do not remove the USB flash drive while saving a snapshot, or the snapshot will be lost.*
	Saving File: The system is saving a recorded file to the USB flash drive. *Note: Do not remove the USB flash drive while this icon is displayed, or the recording will be lost.*
	External Monitor: The HDMI-to-DVI connection for external video is enabled. Video may now be displayed on an external monitor.

ICON	FUNCTION
	Hourglass: Please wait while the system prepares for the next action.
	Audio Recording is Active: Audio is being recorded on the video. *Note: The default for audio recording is OFF, so audio recording on the video occurs only if the default has been changed to ON in user settings.*
	Back Arrow: Exit to previous screen.
	Up Arrow: Select previous file for playback.
	Down Arrow: Select next file for playback.
	Play: Play the selected file or continue playing a paused video file.
	Pause: Pause the video playback.
	Snapshot: On the Playback menu, this icon indicates that a file is a snapshot.
	Video: On the Playback menu, this icon indicates that a file is a video.

Figure 9. GlideScope Video Monitor Back Panel


Video-out port: Connect the HDMI-to-DVI cable from the external monitor
USB port: Connect a USB flash drive to record video or take a snapshot
Power socket: Connect the barrel plug from the 12V power adapter
Video cable port: Attach the video cable
Product identification: Includes product serial number
Mounting plate: Connect the monitor to a mobile stand or IV pole

SETTING UP

WARNING

To reduce the risk of electrical shock, use only the accessories and peripherals recommended by Verathon®.

Before you can use the GlideScope AVL system for the first time, you must inspect the components, set up the system, and perform a functional test as recommended by Verathon®. Complete the following procedures:

1. Perform Initial Inspection—Inspect the system for any obvious physical damage that may have occurred during shipment.
2. Mount the GlideScope Video Monitor (Optional)—Set up the GlideScope Video Monitor on a mobile stand or IV pole.
3. Charge the Monitor Battery—You can use the system while the battery is charging.

   Note: The monitor will operate without charging the battery by using the GlideScope Video Monitor 12V DC Power Adapter that shipped with the unit.
4. Connect the Video Cable—Attach the cable that connects the video baton or laryngoscope with the monitor and transmits the video data.
5. Connect to an External Monitor (Optional)—Connect the monitor to an external display source, such as a larger monitor screen, by using the HDMI-to-DVI cable.
6. Configure User Settings—Enter data customized to your clinic, and configure settings such as the date and time.
7. Perform a Functional Check—Before you use the device for the first time, perform a functional check to ensure that the system is working properly.

PROCEDURE 1. PERFORM INITIAL INSPECTION

When you receive the GlideScope AVL system, Verathon recommends that an operator familiar with the instrument perform a full visual inspection of the system for any obvious physical damage that may have occurred during shipment.

1. Verify that you have received the appropriate components for your system by referring to the packing list included with the system.
2. Inspect the components for damage.
3. If any of the components are missing or damaged, notify the carrier and Verathon Customer Care or your local representative:

   800.331.2313 (Canada and US)
   425.867.1348 (International)
   +31 (0) 20 210 30 91 (Europe)

   For additional contact information, see Contact Information.

PROCEDURE 2. MOUNT THE GLIDESCOPE VIDEO MONITOR (OPTIONAL)

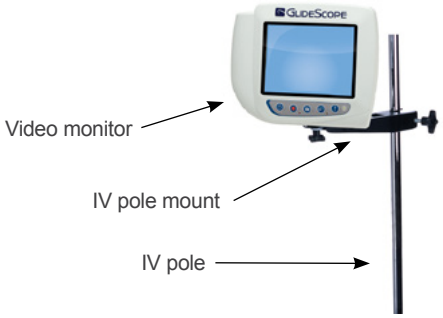
If you choose to mount the system, you may use either of the following configurations:

- Mount it on a mobile stand (Figure 10). The mobile stand makes it easy for you to move the system from one location to another.
- Mount it on an IV pole (Figure 11).

This procedure includes instructions for assembling the mobile stand, mounting the system on either the mobile stand or an IV pole, and then adjusting the monitor angle.

Figure 10. Video Monitor on Mobile Stand

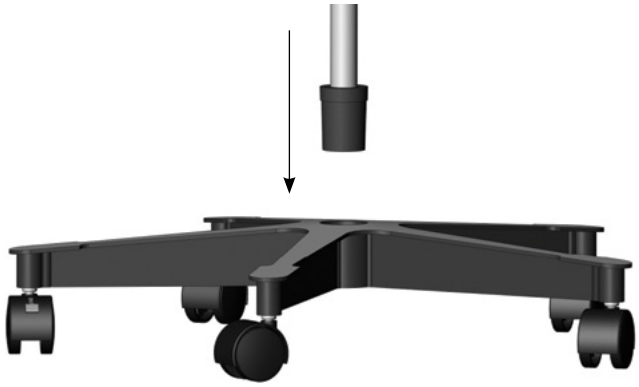
Figure 11. Video Monitor on IV Pole



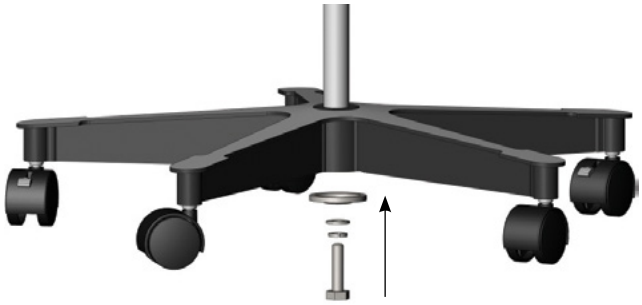
ASSEMBLE THE MOBILE STAND

1. If you are mounting the system on an IV pole, skip to Step 9.

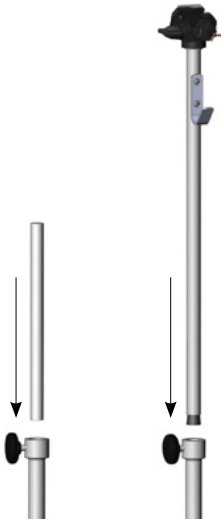
   If you are mounting the system on a mobile stand, continue to the next step.
2. Remove the hex bolt and washers from the bottom of the base pole.
3. Insert the bottom end of the base pole into the top of the base.



4. Screw the bolt and washers back into place, and then tighten the bolt securely. This attaches the base pole to the base and ensures stability.



5. Insert the spacer pole into the top end of the base pole, and then insert the mounting pole into the top end of the base pole.

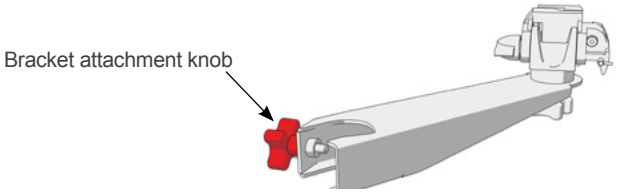


6. Turn the height adjustment knob counterclockwise.

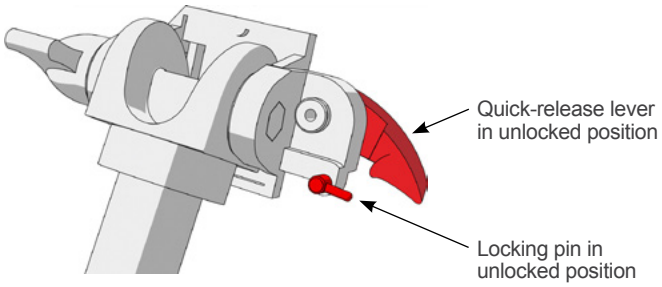
7. Place your hands where they cannot be pinched by moving parts, and then raise or lower the pole to the desired height.
8. Turn the height adjustment knob clockwise until tight. This secures the pole at the desired height.

ATTACH THE MONITOR TO THE MOBILE STAND OR IV POLE

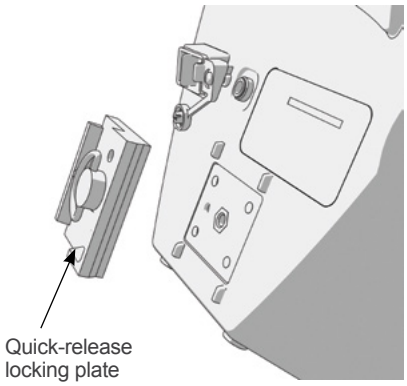
9. If you are using an IV pole mount, place the mounting bracket on the IV pole, and then tighten the bracket attachment knob until the IV pole mount is secure.

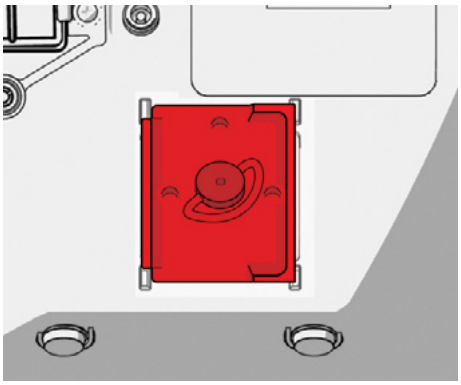


10. On the mobile stand mount or the IV pole mount, ensure that the locking pin and quick-release lever are in the unlocked (horizontal) position.



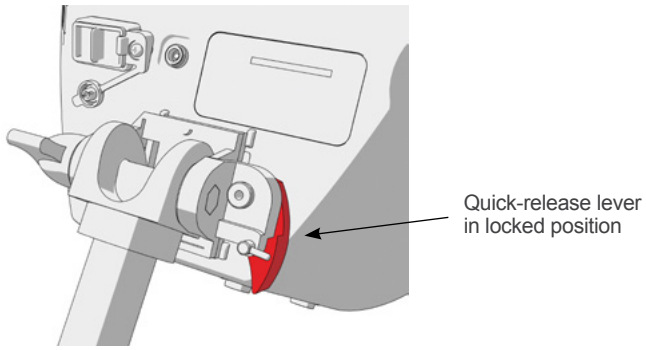
11. Using the orientation shown in the following images, screw the quick-release locking plate to the back panel of the monitor.



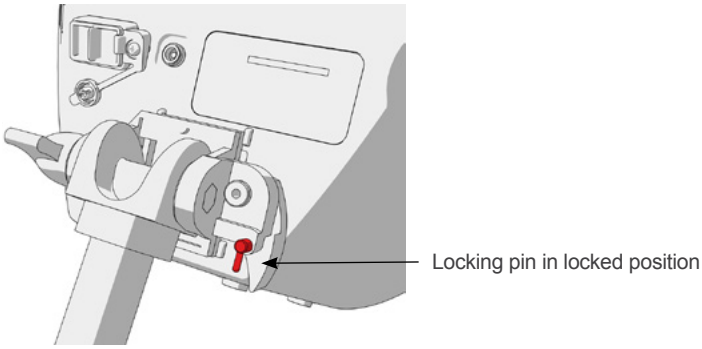


12. Seat the locking plate of the monitor on the quick-release mount. When properly situated, the monitor sits securely on the mount, and the quick-release lever automatically snaps into the locked (down) position.

13. Ensure that the quick-release lever is fully in the locked (down) position. This locks the monitor into place.



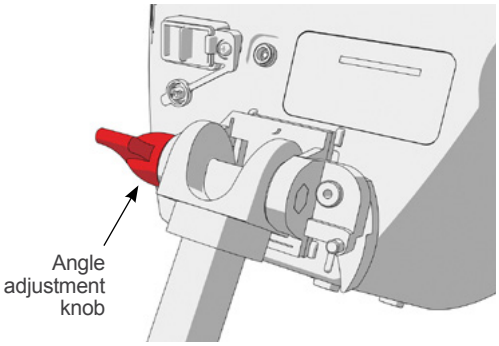
14. Adjust the locking pin to the locked (down) position. This secures the quick release lever in the locked position.



ADJUST THE MONITOR ANGLE

Before you start using the video monitor, adjust the angle of the monitor for optimal viewing. The ideal angle minimizes glare and maximizes visibility.

1. Turn the angle adjustment knob counterclockwise.



2. Tilt the monitor to the desired angle.
3. Turn the angle adjustment knob clockwise. This secures the monitor at the desired angle.
4. To attach a blade cradle or a video baton cradle, see the procedure Attach the Cradle (Optional).

PROCEDURE 3. ATTACH THE CRADLE (OPTIONAL)

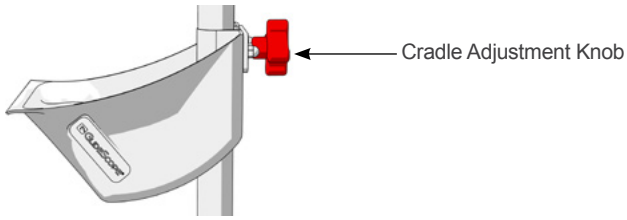
You may elect to attach a blade cradle or a video baton cradle to the mobile stand or IV pole mount. The video baton cradle may be attached directly the pole or attached to the interior of the blade cradle. If you would like to attach a blade cradle to the mobile stand or IV pole, complete Option 1. If you would like to attach the video baton cradle directly to the mobile stand or IV pole, complete Option 2.

OPTION 1. ATTACH THE BLADE CRADLE TO THE POLE

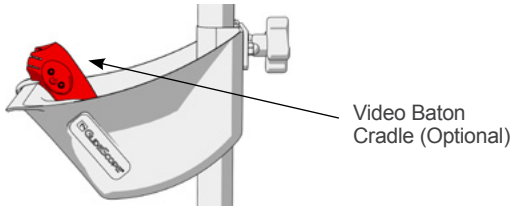
This option provides instructions for attaching the blade cradle to the mobile stand or IV pole, and it also provides instructions for optionally attaching the video baton cradle to the blade cradle.

1. Open the cradle latch and position the pole on the back of the cradle.

2. Close the cradle latch and tighten in place by turning the cradle adjustment knob clockwise.

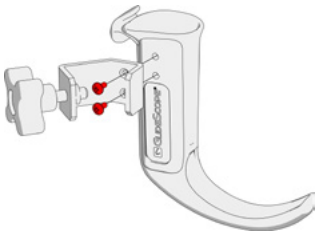


3. If you would like to attach the video baton cradle to the blade cradle, hook it into place.

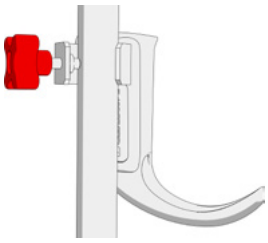


OPTION 2. ATTACH THE VIDEO BATON CRADLE TO THE POLE

1. Screw the center pole clamp to the video baton cradle.



2. Attach the center pole clamp and video baton cradle to the pole, and then turn the adjustment knob clockwise to tighten.



PROCEDURE 4. CHARGE THE MONITOR BATTERY

WARNING

In order to maintain electrical safety, use only the provided, medical-approved power supply.

The GlideScope Video Monitor includes an internal lithium-ion battery. Verathon® recommends that you charge the battery fully prior to first use.

Under normal operating conditions, a fully charged battery lasts approximately 90 minutes or longer before it needs to be recharged. For optimal battery life, ensure that the battery is fully charged before you try to use the monitor in battery mode. You should charge the battery at temperatures between 0–35°C (32–95°F).

The percentage above the Battery Status icon indicates the remaining battery charge.

Figure 12. Battery Status Icons

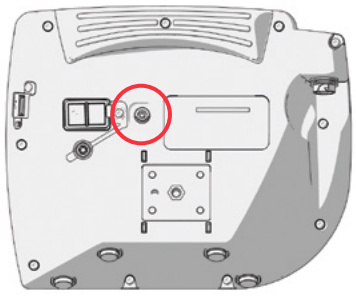
Battery must be charged

Approximately ⅓ battery life remaining

Approximately ⅔ battery life remaining

Battery is ⅔ to fully charged. The lightning bolt indicates that the battery is charging.

1. Connect the video monitor 12V DC power adapter to the power cable.
2. On the back panel of the monitor, remove the power socket cap, and then connect the 12V DC power adapter to the power socket.



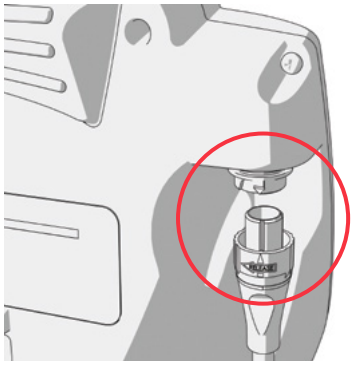
3. Plug the power supply into a hospital-grade power outlet.
4. Allow the battery to charge. Fully charging the battery may take up to 6 hours.

PROCEDURE 5. CONNECT THE VIDEO CABLE

This procedure connects the AVL Single Use video baton or the AVL Reusable video laryngoscope to the monitor, which displays the image transmitted from the camera.

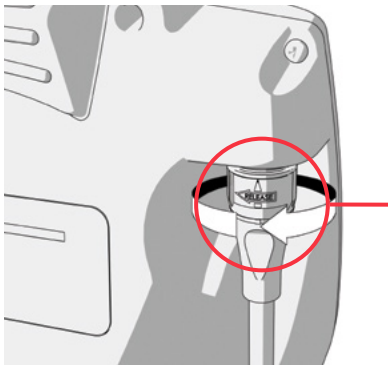
Ensure that the video monitor is turned off prior to connecting or disconnecting the video cable.

1. Align the arrow on the video cable and the arrow on the video cable port.



2. Insert the video cable into the port. You will hear a click when the cable is successfully connected.

   Note: When disconnecting the video cable from the monitor, rotate the connector ring in the direction of the arrow.



PROCEDURE 6. CONNECT TO AN EXTERNAL MONITOR (OPTIONAL)

WARNING

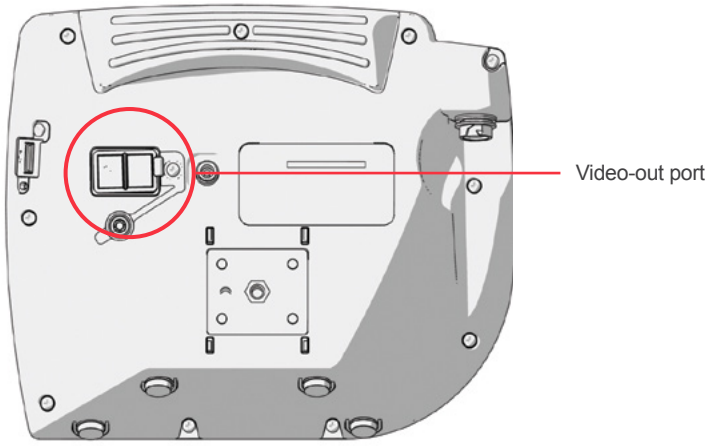
The external monitor must be safety-approved medical equipment.

By using an HDMI-to-DVI cable, you can connect the GlideScope Video Monitor to an external monitor that is approved for medical use. For more information, please contact your Verathon® Customer Care representative.

Note: Image quality on the external monitor may vary according the resolution of the external monitor.

Note: To maintain electromagnetic interference (EMI) within certified limits, the GlideScope AVL system must be used with the cables, components, and accessories specified or supplied by Verathon. For additional information, see the System Parts & Accessories and Component Specifications sections. The use of accessories or cables other than those specified or supplied may result in increased emissions or decreased immunity of the system.

1. Ensure that the video monitor is turned off.
2. On the back of the monitor, remove the HDMI cap from the video-out port.
3. Connect the HDMI end of the cable to the video-out port.



4. Connect the other end of the cable to the DVI port on an external monitor that is approved for medical use.
5. Press the **Power** button. The monitor turns on.
6. Press the **External Video** button. The indicator LED to the right of the button illuminates when the connection is successful, and the video displays on the external monitor.
7. To stop sending video to an external monitor, press the **External Video** button again.
8. Prior to disconnecting the HDMI-to-DVI cable, ensure the video monitor is turned off.

PROCEDURE 7. CONFIGURE USER SETTINGS

You may configure the following settings directly on the unit:

- Date and Time
- Date and Time Format
- Key Click Sound
- Auto Power Off
- Audio Recording
- Auto Recording
- Auto External Video
- Clinic Name

The second page of user settings, as seen in Figure 14, is only available if your GlideScope Video Monitor is running software version 3.4 or higher. This page of user settings displays system use information, and it does not contain any configurable settings. If you would like to update the software, see System Software on page 55.

Figure 13. User Setting Screen Page 1

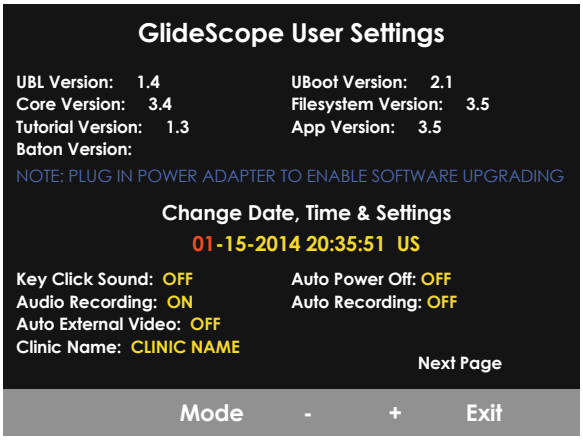


Figure 14. User Setting Screen Page 2

1. If a USB flash drive is inserted into the monitor, remove it.
2. Press the **Power** button. The monitor turns on.
3. Hold the **Tutorial** button, and then press the **Snapshot** button. The User Setting screen appears on the monitor. The configurable user settings are displayed in yellow, and the selected setting is highlighted in red.
4. Customize your user settings by using the following buttons:
   - Press the **Record** button to select the parameter you want to set.
   - Press the **Snapshot** button to decrease the parameter value.
   - Press the **External Video** button to increase the parameter value.
   - When inputting the Clinic Name, the **Tutorial** button moves the selection to the next letter. Press the **Record** button twice to return the selection back to the Date/Time setting.
   - To view the second page of user settings, press the **Record** button until **Next Page** is highlighted in red, and then press the T**utorial** button. To exit the second page of user settings, press the **Tutorial** button again.
5. When you are finished customizing the settings, press the **Record** button until the option **Exit** is available in the gray bar, and then press the **Tutorial** button. This saves the parameters, and the User Setting screen closes.

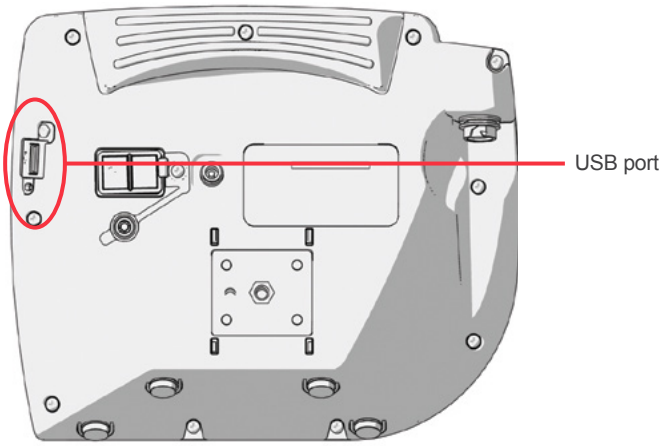
PROCEDURE 8. PERFORM A FUNCTIONAL CHECK

Before you use the device for the first time, perform the following functional check to ensure that the system is working properly. Please contact your Verathon® Customer Care Representative if your GlideScope AVL system does not function as described below.

1. Fully charge the monitor battery (this takes approximately 6 hours).
2. Attach the video cable to the monitor.
3. Press the **Power** button. The monitor turns on.
4. Look at the monitor screen, and verify that the image displayed is being received from the video baton or video laryngoscope.

Note: There may be a slight blade intrusion in the upper-left and upper-right corners of the monitor, and a thin line may appear along the top. These blade edges are captured in the view because of the wide-angle camera lens used in the video laryngoscope. This image acts as a frame of reference during the intubation process and ensures that the orientation of the image is correct in the monitor.

5. On the back of the monitor, remove the USB port cap, and then insert a USB flash drive into the port.



6. Ensure that the USB flash drive is detected by checking if the **USB Flash Drive** icon on the bottom of the screen is displayed.
7. Press the **Record** button. Recording starts.
8. To stop recording, press the **Record** button again.

9. Wait until the **Saving File** icon has disappeared from the screen, and then remove the USB flash drive from the monitor.

10. On a computer, verify that the recorded video (.avi) file can be played.

    Note:

    If you are viewing the recorded file on a Windows® operating system (OS), use an application such as Windows Media Player®.

    If you are viewing the recorded video file on Mac OS®, use an application such as one of the following:

    - *MPlayerX (free in the App Store℠)*
    - VLC® (free at http://www.videolan.org/vlc/index.html)

    If you are viewing the recorded video file on iOS®, use an application such as one of the following:

    - *VLC for iOS (free in the App Store)*
    - *8player lite (free in the App Store)*
    - *Media Player—PlayerXtreme™ HD (free in the App Store)*

USING THE DEVICE

Prior to using the device, set up the device according to the instructions in the previous chapter, and verify the setup by completing the procedure Perform a Functional Check.

WARNING

AVL Reusable video laryngoscopes and the GlideScope Direct intubation trainer are delivered nonsterile and require cleaning and high-level disinfection prior to initial use.

WARNING

Before every use, ensure the instrument is operating correctly and has no sign of damage. Do not use this product if the device appears damaged.

To ensure patient safety, routinely inspect the reusable video laryngoscope before and after every use in order to ensure the blade is free of rough surfaces, sharp edges, cracks, protrusions, or any other indication of wear. If found, do not use the damaged or worn blade.

Always ensure that alternative airway management methods and equipment are readily available.

Report any suspected blade defects to Verathon® Customer Care at:

Phone: 800.331.2313 (U.S. and Canada)
425.867.1348 (International)

Email: customerservice@verathon.com

AVL Reusable and Single Use video laryngoscopes are equipped with the Reveal™ anti-fog feature, which reduces camera fogging during the intubation procedure. To fully optimize the feature, you must allow the video laryngoscope to warm up for 30-120 seconds prior to use, depending on the ambient temperature and humidity of the clinical environment. Full optimization of the anti-fog feature is not necessary in order to use the device; if desired, you may begin the intubation procedure immediately.

Note: If the video laryngoscope is stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

Using the AVL system consists of the following procedures:

1. Connect the Video Cable to the Monitor
2. Insert the Video Baton into the Stat (Single Use Only)
3. Prepare the GlideScope System
4. Intubate Using the GlideScope 4-Step Technique
5. Intubate Using the GlideScope Direct
6. Use the Record & Snapshot Features (Optional)
7. Use the Playback Feature (Optional)

PROCEDURE 1. CONNECT THE VIDEO CABLE TO THE MONITOR

Ensure that the video monitor is turned off prior to connecting or disconnecting the video cable.

Table 4. Video Laryngoscope Sizes

SINGLE USE SIZES		
Stat	**Video Baton**	**Recommended Patient Weight/Size**
GVL® 0 Stat	Video baton 1-2	Patients less than 1.5 kg (3.3 lbs)*
GVL 1 Stat	Video baton 1-2	Patients between 1.5–3.8 kg (3.3–8.4 lbs)*
GVL 2 Stat	Video baton 1-2	Patients between 1.8–10 kg (4–22 lbs)*
GVL 2.5 Stat	Video baton 1-2	Patients between 10–28 kg (22–61.7 lbs)*
GVL 3 Stat	Video baton 3-4	Patients between 10 kg–adult (22 lbs–adult)*
GVL 4 Stat	Video baton 3-4	Patients between 40 kg–morbidly obese (88 lbs–morbidly obese)*
REUSABLE BLADE SIZES		
GlideScope AVL Blade		**Recommended Patient Weight/Size**
GVL 2 blade		Patients between 4–20 kg*
GVL 3 blade		Patients between 10 kg–adult*
GVL 4 and GVL 5 blades		Patients between 40 kg–morbidly obese*

** Weight ranges are approximate; a medical professional must evaluate on a patient-by-patient basis.*

1. Ensure the video laryngoscope and other system components have been properly cleaned and disinfected. For more information, see the Cleaning & Disinfecting chapter.
2. Using the information in Table 4, in combination with a clinical assessment of the patient and the experience and judgment of the clinician, select the reusable blade or single-use video baton/Stat combination that is appropriate for the patient.
3. Align the arrow on the video cable and the arrow on the video cable port.

4. Insert the video cable into the port. You will hear a click when the cable is successfully connected.

   Note: When disconnecting the video cable from the monitor, rotate the connector ring in the direction of the arrow.

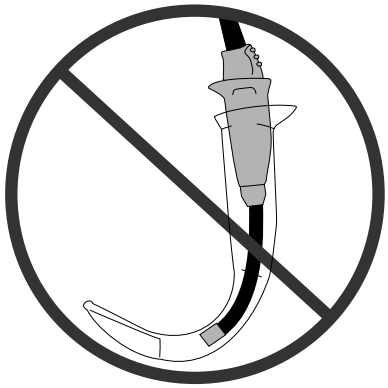
PROCEDURE 2. INSERT THE VIDEO BATON INTO THE STAT (SINGLE USE ONLY)

1. Open the GVL® Stat pouch, but do not remove the Stat from the packaging.
2. Ensure that the logo on the side of the baton and the logo on the side of the Stat are aligned.
3. Slide the video baton into the GVL Stat until it clicks into place. Do not remove the Stat from the pouch until you are ready to begin the intubation. This ensures that the Stat remains as clean as possible.

   Note: Ensure that you do not insert the video baton backwards.

Correct

Incorrect



4. When you remove the GVL Stat from the packaging, visually inspect the Stat to ensure that all exterior surfaces are free of unintended rough areas, sharp edges, protrusions, or cracks.

PROCEDURE 3. PREPARE THE GLIDESCOPE SYSTEM

1. Press the **Power** button. The video monitor turns on.

   Note: If the monitor locks up or becomes unresponsive for any reason, press and hold the Power button for 10 seconds to reboot the system.

2. Ensure that the battery is sufficiently charged. If necessary, connect the monitor directly to power.
3. On the monitor screen, verify that the image displayed is from the video laryngoscope camera. On the monitor, a small portion of the blade may be visible on the top or upper-left and right corners.
4. If needed, allow the GlideScope Reveal™ anti-fog feature to warm up for 30–120 seconds.

   Note: The time required for the anti-fog feature to be fully optimized varies according to the ambient temperature and humidity where the equipment is being stored or used. If the video laryngoscope is stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

5. If desired to provide additional anti-fog benefits, you may apply Dexide™ Fred™ Lite to the camera window on the reusable blade or Stat.* Use the solution according to the manufacturer's instructions.

PROCEDURE 4. INTUBATE USING THE GLIDESCOPE 4-STEP TECHNIQUE

If you are using a GlideScope Direct intubation trainer, skip to the next procedure, Intubate Using the GlideScope Direct.

WARNING

When you are guiding the endotracheal tube to the distal tip of the video laryngoscope, ensure that you are looking in the patient's mouth, not at the video monitor screen. Failure to do so may result in injury to the tonsils or soft palate.

WARNING

Several areas of the video laryngoscope or Stat that contact the patient can exceed 41°C (106°F) as part of normal operation:

- The first area is the light-emitting area surrounding the camera where the anti-fog feature is located. When used as indicated, continuous contact with this area is unlikely because, if tissue were to contact this area, the view would be lost and devices would need to be adjusted to regain the airway view.
- The second area is the area surrounding the camera, out of view of the camera. Continuous contact with this area is unlikely because the product is typically not held stationary for an extended period of time exceeding 1 minute.

If continuous contact is maintained for longer than 1 minute, it is possible to cause thermal damage such as a burn to the mucosal tissue.

Note: Typical intubations are less than 1 minute in duration.

* Compatibility has been demonstrated for up to one hour of continuous exposure on reusable blades, video batons, and Stats.

To perform an intubation, Verathon® recommends using the GlideScope 4-Step Technique as outlined in this procedure. Each step begins with where the user should be looking in order to complete that action. Prior to beginning this procedure, verify that the monitor is receiving an accurate image from the video laryngoscope.

1. **Look in the Mouth:** With the video laryngoscope in the left hand, introduce it into the midline of the oral pharynx.

2. **Look at the Screen:** Identify the epiglottis, and then manipulate the blade in order to obtain the best glottic view.

Figure 15. Ideal Glottic View

3. **Look in the Mouth:** Carefully guide the distal tip of the tube into position near the tip of the laryngoscope.

4. **Look at the Screen:** Complete the intubation, gently rotating or angling the tube in order to redirect it as needed.

PROCEDURE 5. INTUBATE USING THE GLIDESCOPE DIRECT

WARNING

If the GlideScope Direct is powered on for an extended period of time, it is possible for the surface temperature to exceed 41°C at the tip of the blade, where the lighting and camera are located.

WARNING

Inspect the product before use. Do not use the product if it appears damaged.

The following techniques are recommended for use of the GlideScope Direct intubation trainer. Ensure that the GlideScope Direct has been properly cleaned and high-level disinfected prior to use.

OPTION 1. RIGHT-SIDED APPROACH

This option details the use of a right-sided approach to the mouth, pharynx, and glottis.

1. The patient is optimally positioned with either extension of the neck or a “classic sniffing position.”
2. The mouth is opened, and efforts are made to minimize contact with the lips and teeth. The GlideScope Direct is introduced along the right side of the tongue, which is displaced leftward.
3. The GlideScope Direct is advanced along the tongue base until the epiglottis is seen. The GlideScope Direct tip is placed in the vallecula, lifting the epiglottis by tension on the hyoepiglottic ligament.
4. A direct line-of-sight to the glottis may be achieved by elevation of the epiglottis. The operator can view this directly, and the instructor can observe the progress on the video monitor.
5. The use of a stylet is optional. The operator attempts to introduce the endotracheal tube through the vocal cords.

OPTION 2. MIDLINE APPROACH

This option details the use of a midline approach to the mouth, pharynx, and glottis.

1. The patient is optimally positioned with either extension of the neck or a “classic sniffing position.”
2. Using the GlideScope Direct, the operator then enters the midline of the mouth, attempting to see directly to the epiglottis (guide to the glottis) and then the GlideScope Direct tip is placed in the vallecula, lifting the epiglottis by tension on the hyoepiglottic ligament.
3. The operator now attempts to gain a line-of-sight of the glottis, and the instructor observes the progress on the video monitor.
4. Where necessary, the operator may also observe the video view.

PROCEDURE 6. USE THE RECORD & SNAPSHOT FEATURES (OPTIONAL)

WARNING

Use only a passive-type USB flash drive. Do not use USB drives powered by another external source.

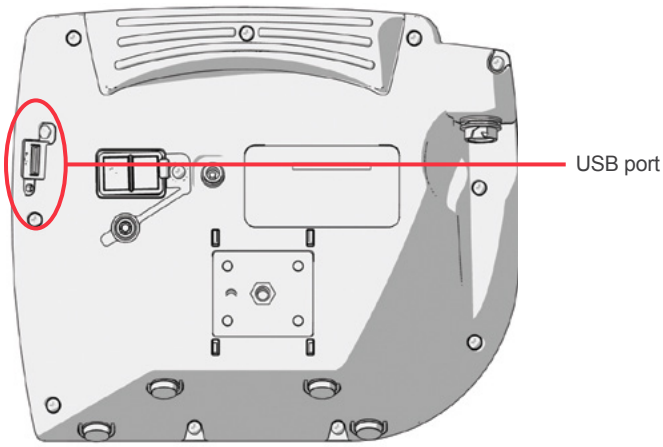
The GlideScope AVL system is equipped with video and audio recording features and the ability to save a snapshot of the live display on the monitor. The GlideScope AVL system saves this data to a USB flash drive, and you can view the recordings or snapshots on a computer or on the video monitor. For more information about viewing these files on a monitor, see Use the Playback Feature (Optional) on page 37.

By default, audio recording is disabled on the GlideScope AVL system. If you would like the system to record audio in addition to video, complete the procedure Configure User Settings in order to enter the User Setting display, and then change the **Audio Recording** setting to **On**.

While recording, a number next to the icon indicates approximately what percentage of the USB flash drive has been used. When the USB flash drive is full, recording stops.

1. On the back of the monitor, remove the USB port cap, and then insert a USB flash drive into the port.

   Note: If you do not insert a USB flash drive, the video recording, audio recording, and snapshot features will not be available.



2. Ensure that the USB flash drive is detected by checking if the **USB Flash Drive** icon on the bottom of the screen is displayed.
3. If you are recording the intubation, press the **Record** button . Video recording starts and is saved to the USB flash drive.

   If audio recording is enabled in the User Settings display, the **Audio Recording is Active** icon will appear on the screen, and audio will be recorded with the video.
4. When you are finished recording, press the **Record** button again, and then wait for the **Saving File** icon to disappear.

   Note: If you remove the USB flash drive before the Saving File icon disappears, the recording will be lost.

5. If at any point you would like to save a photo of the live display to the USB flash drive, press the **Snapshot** button , and then wait for the **Saving Snapshot** icon to disappear.

   Note: If you remove the USB flash drive before the Saving Snapshot icon disappears, the photo will be lost.

6. If you would like to review the recorded files on the video monitor, complete the following procedure, Use the Playback Feature (Optional).

   If you would like to review the recorded files on a computer, insert the USB flash drive into the PC, and then view the .avi or .jpg files.

   Note:

   If you are viewing the recorded file on a Windows® operating system (OS), use an application such as Windows Media Player®.

   If you are viewing the recorded video file on Mac OS®, use an application such as one of the following:

   - *MPlayerX (free in the App Store℠)*
   - VLC® (free at http://www.videolan.org/vlc/index.html)

   If you are viewing the recorded video file on iOS®, use an application such as one of the following:

   - *VLC for iOS (free in the App Store)*
   - *8player lite (free in the App Store)*
   - *Media Player—PlayerXtreme™ HD (free in the App Store)*

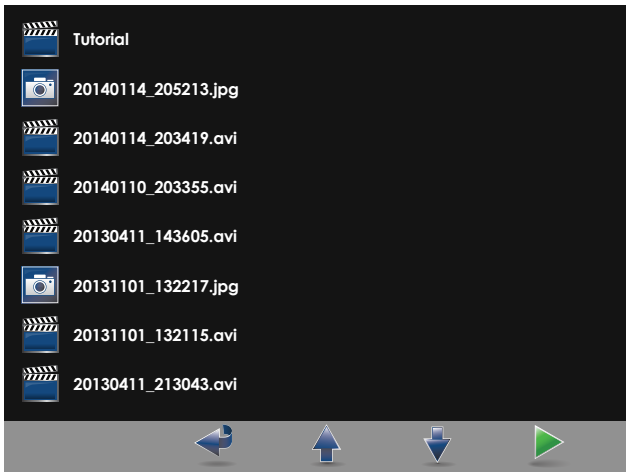
PROCEDURE 7. USE THE PLAYBACK FEATURE (OPTIONAL)

Recorded videos and snapshots on a USB flash drive can be viewed on the GlideScope Video Monitor.

This feature is only available if your GlideScope Video Monitor is running software version 3.4 or higher. For more information about upgrading the software, see System Software on page 55.

1. On the back of the monitor, remove the USB port cap, and then insert a USB flash drive into the port.
2. Ensure that the USB flash drive is detected by checking if the **USB Flash Drive** icon on the bottom of the screen is displayed.
3. Press and hold the **Tutorial** button 3 seconds or longer. The playback menu is displayed.

Figure 16. Playback Menu



4. Navigate the menu as follows:
   - Press the **Snapshot** button to move up the list of playback files.
   - Press the **External Video** button to move down the list of playback files.
5. When you have selected the item that you want to play, press the **Tutorial** button. Playback starts.
6. When the file is being played back and is displayed on the screen, press the **Snapshot** button to playback the next file above the one currently displayed. Press the **External Video** button to play the next file below the one currently displayed.
7. If the file being played back is a video, pause and resume playback by pressing the **Tutorial** button.
8. Press the **Record** button to return to the playback menu.
9. Press the **Record** button again to close the playback menu.

TIPS FOR USING THE GLIDESCOPE AVL SYSTEM

- The GlideScope video laryngoscope is designed to be inserted down the midline of the tongue to the epiglottis.
- The GlideScope video laryngoscope may be used to produce a Macintosh-style lift of the epiglottis, or to produce a Miller lift.
- Intubations using the GlideScope video laryngoscope only require approximately 0.5–1.5 kg (1–3.5 lbs) of lifting force.
- The use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet has been designed to complement the angle of the GlideScope video laryngoscope to facilitate intubation, and it should be used with endotracheal tubes 6.0 mm and larger. A malleable stylet with a 60-90° angle may be used.

- To aid the passage of the endotracheal tube when at the vocal cords, gradually withdraw the stylet approximately 5 cm (2 in). A 1-cm (0.5 in) withdrawal of the laryngoscope may be beneficial to reduce the viewing angle and allow the glottis to drop.

TIPS FOR WORKING WITH ENDOTRACHEAL TUBES

- Insert the ETT behind or immediately adjacent to the GlideScope video laryngoscope.
- Do not insert the stylet into the larynx during intubation.
- Carefully introduce the distal end of the ETT between the vocal folds.
- When introducing the video laryngoscope or the endotracheal tube, look directly into the mouth to avoid damaging the endotracheal tube cuff, the patient's teeth, or soft tissues such as the soft palate or tonsils.
- Advance the ETT while simultaneously withdrawing the stylet with the thumb. The stylet should be withdrawn approximately 5 cm (2 in).

- Avoid excessive lifting or pushing of the glottis. Maximum laryngeal exposure may not facilitate intubation; reducing the elevation applied to the laryngoscope may make inserting the ETT easier.

CLEANING & DISINFECTING

GENERAL INFORMATION

WARNING

Because the product will likely be contaminated with human blood or body fluids capable of transmitting pathogens, all cleaning facilities must be in compliance with (U.S.) OSHA Standard 29 CFR 1910.1030 “Bloodborne Pathogens” or an equivalent standard. For more information, visit www.osha.gov.

WARNING

Availability of cleaning, disinfection, and sterilization products varies by country, and Verathon® is unable to test products in every market. For more information, please contact Verathon Customer Care at 1.800.331.2313 or your local representative. For contact information, visit verathon.com/contact-us.

WARNING

This product may only be cleaned, disinfected, or sterilized by using the approved low-temperature processes provided in this manual. Cleaning, disinfection, and sterilization methods listed are recommended by Verathon based on efficacy or compatibility with component materials.

WARNING

The reusable video laryngoscope is considered a semi-critical device intended to contact the airway. It must be thoroughly cleaned and undergo high-level disinfection after each use.

WARNING

Ensure that you follow the manufacturer’s instructions for handling and disposing of the cleaning and disinfection solutions provided in this manual.

WARNING

Cleaning is critical to ensuring the component is ready for disinfection. Failure to properly clean the device could result in a contaminated instrument after completing the disinfection procedure.

When cleaning, ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen disinfection method to reach all the surfaces.

WARNING

Do not place the GlideScope AVL video baton or reusable video laryngoscope in the cradle if any of the components are contaminated.

Cleaning and disinfecting the GlideScope AVL system is an important part of using and maintaining the system. Prior to each use, ensure that each system component has been cleaned and disinfected according to the guidance provided in Table 5. You should also examine the AVL periodically to make sure it is operating correctly. For more information, see the Maintenance & Safety chapter on page 54.

This chapter is divided into the following sections:

- General Information—Contains an overview of system information and provides the cleaning and disinfection procedures that are common to both the reusable and single-use systems
- Reusable System—Contains the cleaning and disinfection procedure for the reusable blade
- Single Use System—Contains the cleaning and disinfection procedures for the AVL video baton
- Direct Intubation Trainer—Contains the cleaning and disinfection procedure for the GlideScope Direct intubation trainer

Prior to cleaning or disinfecting, ensure the protective cap is properly fitted on the video cable connector. The arrow on the connector plug should match to the dot on the protective cap.

Correct fitting

Incorrect fitting

IMPORTANT

Do not let any contaminant(s) dry on the device. Bodily contaminants tend to become securely attached to solid surfaces when dried, making removal more difficult.

When using any of the disinfectants listed in this manual, read and comply with product use instructions in all applications.

Note: It is understood that all items in the following table will be used as intended, and the level of disinfection or sterilization required may vary according to local regulations.

Table 5. Risk Assessment for AVL Single Use and Reusable Systems

DEVICE	STERILE	USE	SPAULDING'S/CDC CLASSIFICATION	DISINFECTION LEVEL			STERILIZATION
				Low	Int.	High	
Monitor*	Nonsterile	Reusable	Noncritical				
Cradle*	Nonsterile	Reusable	Noncritical				
GVL® Stat†	Sterile	Single Use	Semi-critical				
Video baton‡	Nonsterile	Reusable	Noncritical	X			
AVL reusable blade	Nonsterile	Reusable	Semi-critical			X	
GlideScope Direct	Nonsterile	Reusable	Semi-critical			X	
GlideRite® Rigid Stylet	Nonsterile	Reusable	Semi-critical			X	

* *Clean the video monitor and cradle when they are visibly soiled and on a regular basis, as per a schedule established by the medical care facility or provider.*

† *Single-use Stats may not be cleaned, disinfected, or sterilized. Dispose of single-use Stats after use.*

‡ *The AVL video baton is a nonsterile, reusable device, which is protected from contact with mucous membranes and non-intact skin by the Stat (sterile, single-use) when used as intended. Low-level disinfection is recommended for the AVL video baton after every patient use. High-level disinfection is required for the video baton when it is visibly soiled.*

X *Checked boxes show minimum disinfection level requirement.*

Shaded areas indicate that the disinfection/sterilization level is not required or not compatible with the device materials.

Unshaded areas show permissible levels of disinfection or sterilization based on compatibility with the device materials.

PROCEDURE 1. CLEAN THE GLIDESCOPE VIDEO MONITOR

IMPORTANT

Ensure that you do not use any abrasive substances, brushes, pads, or tools when cleaning the video monitor screen. The screen can be scratched, permanently damaging the device.

Clean the video monitor when it is visibly soiled and on a regular basis, as per a schedule established by the medical care facility or provider.

1. Turn off the video monitor, and then unplug the device.
2. Using 70% isopropyl alcohol (IPA), Metrex® CaviWipes™, AHP® Oxivir®, or PDI® Chlorascrub™, wipe the exterior of the video monitor.

PROCEDURE 2. CLEAN THE CRADLE

Clean the cradle when it is visibly soiled and on a regular basis, as per a schedule established by the medical care facility or provider.

1. Wipe the cradle with a standard hospital-grade, surface-cleaning product.

PROCEDURE 3. CLEAN & DISINFECT THE GLIDERITE RIGID STYLET

The GlideRite® Rigid Stylet is a reusable device that requires cleaning and either high-level disinfection or sterilization prior to use.

In this procedure, the term *pure water* refers to water that is suitable for disinfection according to local regulations and your medical facility.

Table 6. Cleaning and Disinfection Methods for the GlideRite Rigid Stylet

METHOD	LEVEL	CYCLES*	CONDITIONS
Metrex® CaviCide®	Cleaner	3000	**Water temperature:** 33–40°C (91–104°F) **Exposure:** Spray all surfaces until drenched. Allow to remain wet for 3 minutes. Brush all surfaces. **Rinse:** Rinse for 5 minutes under running water. While rinsing, use a soft-bristled brush and a syringe to flush and brush any hard-to-reach areas.
Getinge® Tec Wash III	Cleaner	3000	**Water temperature:** 20–40°C (68–104°F) **Exposure:** Soak for 3 minutes. Brush all surfaces. **Rinse:** Rinse for 3 minutes under running water.
Metrex® EmPower™	Cleaner	3000	**Water temperature:** 19–29°C (66–84°F) **Exposure:** Prepare solution at 1 ounce/gallon (7.81 ml/L). Soak component for 3 minutes. Before removing from solution, brush all surfaces and pay special attention to hard-to-reach areas. **Rinse:** Rinse for 3 minutes under running water.
Pro-Line Solutions EcoZyme®	Cleaner	3000	**Water temperature:** 19–29°C (66–84°F) **Exposure:** Prepare solution at 1 ounce/gallon (7.81 ml/L) in 30–40°C (86–104°F) water. Soak component for 5 minutes. Before removing from solution, brush all surfaces and pay special attention to hard-to-reach areas. Using a syringe, flush the connectors. **Rinse:** Rinse for 5 minutes under running water.
Metrex® MetriCide® 28	High	3000	**Conditioning:** 23–27°C (73–81°F) **Water temperature:** 33–40°C (91–104°F) **Exposure:** Soak for 20 minutes, ensuring that all air bubbles are removed from the surface of the component. **Rinse:** (3) 3-minute immersions in pure water, while agitating, flushing, and brushing with a sterile, soft-bristled brush.

METHOD	LEVEL	CYCLES*	CONDITIONS
STERIS® Revital-Ox™ Resert® XL HLD † Revital-Ox™ Resert® HLD/Chemosterilant † Resert® XL HLD †	High	3000	**Conditioning:** 20°C (68°F) or higher **Water Temperature:** 20°C (68°F) or higher **Exposure:** Soak for 8 minutes, ensuring that all air bubbles are removed from the surface of the component. **Rinse:** (1) 1-minute immersion with agitation in pure water.
ASP® Cidex® OPA	High	3000	**Conditioning:** 20°C (68°F) or higher **Water Temperature:** 20°C (68°F) or higher **Exposure:** Soak for 12 minutes, ensuring that all air bubbles are removed from the surface of the component. **Rinse:** (3) 1-minute immersions with agitation in pure water.
Metrex® MetriCide® OPA Plus	High	3000	**Conditioning:** 20°C (68°F) or higher **Water Temperature:** 20°C (68°F) or higher **Exposure:** Soak for 12 minutes, ensuring that all air bubbles are removed from the surface of the component. **Rinse:** (3) 1-minute immersions with agitation in pure water.
Medivators® Rapicide® PA 30°C	High	100	**Concentration:** 750–950 parts per million **Conditioning:** 28–32°C (82–90°F) **Exposure:** 5 minutes in a Medivators® Advantage Plus AER reprocessing system with the following configuration: • Hookup: 2-8-002HAN Rev. B • Parameter: 1-24-010 C DISF
STERIS® S40™ or S20™	High	675	Standard cycles in the following processors: STERIS® SYSTEM 1® (outside U.S.) SYSTEM 1E® (in U.S.) SYSTEM 1 EXPRESS (outside U.S.) SYSTEM 1 PLUS (outside U.S.)
ASP® Hydrogen Peroxide Gas Plasma	Sterilization	500	STERRAD® 100S (in U.S.) STERRAD® 100S short cycle (outside U.S.) STERRAD® NX standard cycle STERRAD® 100NX standard cycle STERRAD® 50 STERRAD® 200 short cycle
STERIS® Vaprox® HC	Sterilization	500	Non-lumen cycle in any STERIS® Amsco® V-PRO® low-temperature sterilization system.
Autoclave (steam cycle)	Sterilization	300	**Temperature:** 132–137°C (270–279°F) **Exposure:** 4–18 minutes

* *Value indicates number of compatibility cycles tested.*

† *This chemical may discolor metal, but the discoloration does not affect efficacy or functionality.*

CLEAN THE STYLET

1. Using the water temperature specified in Table 6, rinse the stylet in clean tap water and scrub it with a soft-bristled brush until all visible contamination has been removed.
2. Prepare one of the approved cleaning solutions in Table 6 according to the solution manufacturer's instructions.
3. Expose the components to the cleaning solution according to the instructions in Table 6.

   Note: If you are using Metrex® CaviCide®, spray additional solution as needed in order to ensure that the stylet remains visibly wet for the duration of the exposure period(s).
4. Rinse the stylet according to the instructions in Table 6.

WARNING

To reduce the risk of cytotoxic residual when cleaning with Metrex® CaviCide®, thoroughly rinse the component as instructed in this manual.

5. Visually inspect the stylet for contamination. If there is any sign of contamination, restart the procedure.
6. Using a clean, lint-free cloth, hospital-grade clean air, or a low-temperature dryer, dry the stylet.

The component should now be clean and free of contamination. Handle the product carefully to avoid recontamination.

DISINFECT OR STERILIZE THE STYLET

7. Ensure the stylet has been properly cleaned according to the previous steps.
8. Prepare and condition the disinfection or sterilization solution according to the solution manufacturer's instructions and the conditions stated in Table 6.
9. Disinfect or sterilize the stylet according to the conditions stated in Table 6.
10. Rinse the stylet according to the conditions stated in Table 6.
11. Dry the stylet by using a sterile cloth, hospital-grade clean air, or a low-temperature dryer.
12. Visually inspect the stylet and ensure that there are no signs of damage or cracking. If the stylet is damaged, discard it and contact Verathon® Customer Care to order a new stylet.
13. Store the stylet in a clean environment.

REUSABLE SYSTEM

PROCEDURE 1. CLEAN & DISINFECT THE REUSABLE BLADE

The GlideScope AVL reusable video laryngoscope requires high-level disinfection prior to use. For more information about the risk assessment of AVL system components, see Table 5 on page 41.

IMPORTANT

Do not use metal or abrasive brushes, scrub pads, or rigid tools to clean the blade. The window that protects the camera and light can be scratched, permanently damaging the device.

This product is heat-sensitive, and exposing the components to temperatures in excess of 60°C (140°F) will cause damage to the electronics and void the device warranty.

In this procedure, the term *pure water* refers to water that is suitable for high-level disinfection according to local regulations and your medical facility.

Table 7. Cleaning & Disinfection Methods for the GlideScope AVL Reusable Blade

CHEMICAL	DISINFECTION LEVEL	CONDITIONS
Enzymatic debridement agent/detergent	Cleaner	As per chemical manufacturer's instructions
Metrex® EmPower™ †	Cleaner	**Water temperature:** 19–29°C (66–84°F) **Exposure:** Prepare solution at 1 ounce/gallon. Soak component for 3 minutes. Before removing from solution, brush all surfaces and pay special attention to hard-to-reach areas. **Rinse:** Rinse for 3 minutes under running water.
ASP® Cidex® OPA†	High	**Conditioning:** 20–40°C (68-104°F) **Exposure:** Soak for 12 minutes, ensuring that all air bubbles are removed from the surface of the blade **Rinse:** (3) 1-minute immersions with agitation in pure water
Metrex® MetriCide® Plus 30 †	High	**Conditioning:** 20 ± 2°C (68 ± 4°F) **Exposure:** Soak for 20 minutes, ensuring that all air bubbles are removed from the surface of the blade **Rinse:** (3) 1-minute immersions with agitation in pure water
STERIS® Revital-Ox™ Resert® XL HLD † Revital-Ox™ Resert® HLD/Chemosterilant † Resert® XL HLD †	High	**Conditioning:** 20–60°C (68–140°F) **Water Temperature:** 20–60°C (68–140°F) **Exposure:** Soak for 8 minutes, ensuring that all air bubbles are removed from the surface of the blade **Rinse:** (1) 1-minute immersion with agitation in pure water. Ensure the connector is properly rinsed.

CHEMICAL	DISINFECTION LEVEL	CONDITIONS
STERIS® S40™ or S20™ ‡	High/ Sterilization	Standard cycles in the following processors: STERIS® SYSTEM 1® (outside U.S.) SYSTEM 1E® (in U.S.) SYSTEM 1 EXPRESS (outside U.S.) SYSTEM 1 PLUS (outside U.S.)
STERIS® Vaprox® HC *	Sterilization	Non-lumen cycle in any STERIS® Amsco® V-PRO® low-temperature sterilization system.
ASP® Hydrogen Peroxide Gas Plasma*	Sterilization	STERRAD® 100S (in U.S.), STERRAD® 100S short cycle (outside U.S.), STERRAD® NX standard cycle, or STERRAD® 100NX standard cycle

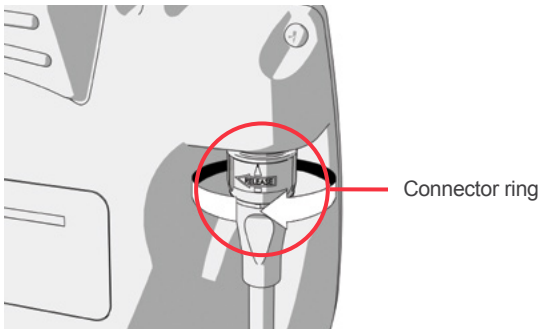
* *Compatible with ≤ 250 cycles. Exceeding 250 cycles may affect the potential life of the product.*

† *Compatible with ≤ 2000 cycles.*

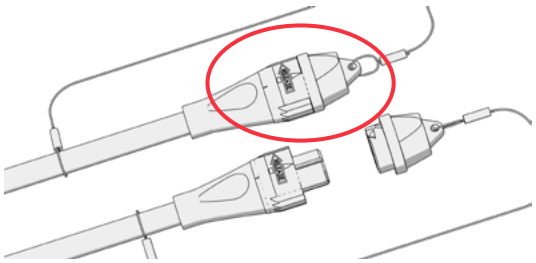
‡ *Compatible with ≤ 500 cycles. Exceeding 500 cycles may affect the potential life of the product.*

CLEAN THE GLIDESCOPE AVL REUSABLE BLADE

1. Ensure the video monitor has been turned off.
2. Detach the video cable from the monitor by turning the connector ring in the direction of the arrow.



3. Place the protective cleaning cap over the connector. Ensure that the mark on the cap is aligned with the arrow on the cable.



4. Wash the reusable video laryngoscope manually using a hospital-grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device. For more information, see Table 7.
5. Rinse the reusable video laryngoscope in clean, running water.

   The video laryngoscope can now be disinfected.

DISINFECT OR STERILIZE THE GLIDESCOPE AVL REUSABLE BLADE

6. Ensure the protective caps on the connectors are secure, according to Step 3.
7. Ensure the video laryngoscope has been properly cleaned, according to Step 4.
8. Prepare and condition the disinfection solution according to the solution manufacturer's instructions and the conditions stated in Table 7.
9. Disinfect the component according to the conditions stated in Table 7. The exposure process and times vary depending on the solution and the component.
10. Rinse the component according to the water temperature (if applicable) and the rinsing instructions stated in Table 7. The rinsing process and times vary depending on the solution and the component.
11. Dry the component by using a sterile cloth, hospital-grade clean air, or a low-temperature dryer.
12. Inspect the reusable blade according to the instructions in the following procedure, and then store the component in a clean environment.

PROCEDURE 2. INSPECT THE REUSABLE BLADE

WARNING

Before every use, ensure the instrument is operating correctly and has no sign of damage. Do not use this product if the device appears damaged.

To ensure patient safety, routinely inspect the GlideScope video laryngoscope blade before and after every use to ensure the blade is free of rough surfaces, sharp edges, cracks, protrusions, shell separation, surface delamination, or any other indication of wear. If found, do not use the damaged or worn blade, otherwise blade breakage may occur and could cause patient injury or death.

Always ensure that alternative airway management methods and equipment are readily available.

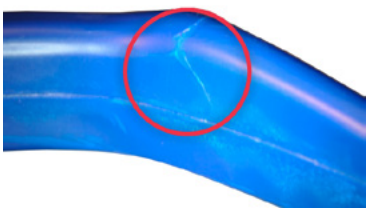
Report any suspected blade defects to Verathon® Customer Care at:

Phone: 800.331.2313 (U.S. and Canada)
425.867.1348 (International)

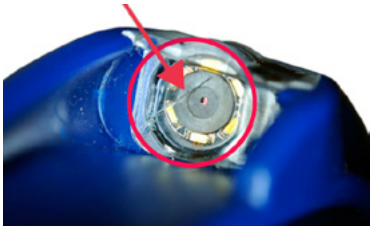
Email: customerservice@verathon.com

1. Visually inspect the video laryngoscope for signs of damage. Damage and wear that may affect safety are shown inside the red circles and are the result of accelerated cycle-to-failure testing to simulate worst-case usage (end-of-life).

Surface Degradation



Cracking



Camera Window Cracking

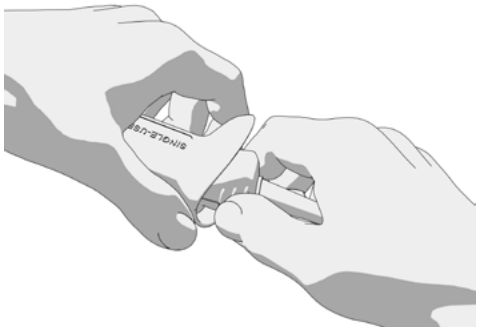
SINGLE USE SYSTEM

For more information about the risk assessment of AVL system components, see Table 5 on page 41.

PROCEDURE 1. REMOVE THE STAT

The GVL® Stat is a sterile, single-use device. After each use, it is a biohazard, and it should be removed from the AVL video baton and disposed of in a manner consistent with local protocols.

1. Hold the Stat in one hand.
2. To reduce the force required to remove the video baton from the Stat, use your thumb and finger to gently press the collar of the Stat.
3. With the other hand, grasp the handle of the video baton and pull firmly.



PROCEDURE 2. CLEAN & DISINFECT THE VIDEO BATON

When used as intended, the AVL video baton is a nonsterile, reusable device, which is protected from contact with mucous membranes and non-intact skin by the Stat (sterile, single-use). Low-level disinfection is recommended for the AVL video baton after every patient use. High-level disinfection is required for the video baton when it is visibly soiled.

IMPORTANT

Do not use metal or abrasive brushes, scrub pads, or rigid tools to clean the video baton. The window that protects the camera and light can be scratched, permanently damaging the device.

This product is heat-sensitive, and exposing the components to temperatures in excess of 60°C (140°F) will cause damage to the electronics and void the device warranty.

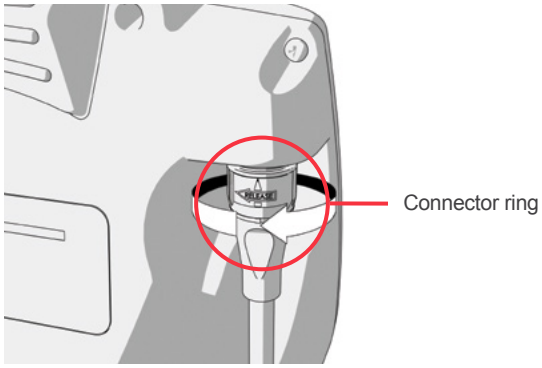
Bleach may be used on the video batons, but pay special attention to stainless steel components, as bleach can corrode stainless steel.

Table 8. Cleaning & Disinfection Methods for the GlideScope AVL Video Baton

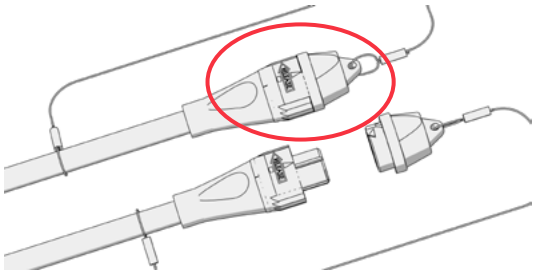
CHEMICAL	DISINFECTION LEVEL	CONDITIONS
Enzymatic debridement agent/detergent	Cleaner	As per chemical manufacturer's instructions
Bleach (500 ppm)	Low	As per chemical manufacturer's instructions
Isopropyl alcohol solution (70%)	Low	As per chemical manufacturer's instructions
ASP® Cidex® OPA	High	As per chemical manufacturer's instructions
Metrex® MetriCide® Plus 30	High	As per chemical manufacturer's instructions
Sultan® Healthcare Sporox® II	High	As per chemical manufacturer's instructions
STERIS® S40™ or S20™	Sterilization	Standard cycles in the following processors: STERIS® SYSTEM 1® (outside U.S.) SYSTEM 1E® (in U.S.) SYSTEM 1 EXPRESS (outside U.S.) SYSTEM 1 PLUS (outside U.S.)
ASP® Hydrogen Peroxide Gas Plasma	Sterilization	STERRAD® 100S (in U.S.), STERRAD® 100S short cycle (outside U.S.), STERRAD® NX standard cycle, or STERRAD® 100NX standard cycle

CLEAN THE GLIDESCOPE AVL VIDEO BATON

1. Ensure the video monitor has been turned off.
2. Detach the video cable from the monitor by turning the connector ring in the direction of the arrow.



3. Place the protective cleaning cap over the connector. Ensure that the mark on the cap is aligned with the arrow on the cable.



4. Wash the video baton manually using a hospital-grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device. For more information, see Table 8.
5. Rinse the video baton in clean, running water.

   The video baton can now be disinfected.

DISINFECT OR STERILIZE THE GLIDESCOPE AVL VIDEO BATON

6. Ensure the equipment is clean according to the previous steps.
7. Ensure the protective caps on the connectors are secure.
8. Prepare and condition the disinfection solution according to the solution manufacturer's instructions and the conditions stated in Table 8.
9. Disinfect the AVL video baton according to the conditions stated in Table 8. The exposure process and times vary depending on the solution and the component.
10. If applicable, rinse the video baton according to the solution manufacturer's instructions.
11. Dry the video baton by using a sterile cloth, hospital-grade clean air, or a low-temperature dryer.
12. Inspect the video baton according to the instructions in the following procedure, and then store the disinfected video baton in a clean environment.

PROCEDURE 3. INSPECT THE VIDEO BATON

WARNING

Before every use, ensure the instrument is operating correctly and has no sign of damage. Do not use this product if the device appears damaged.

Always ensure that alternative airway management methods and equipment are readily available.

Report any suspected defects to Verathon® Customer Care at:

Phone: 800.331.2313 (U.S. and Canada)
425.867.1348 (International)

Email: customerservice@verathon.com

1. Visually inspect the video baton for signs of damage. Perform a routine inspection of the GlideScope AVL video baton before and after every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions, or cracks.

SINGLE USE

DIRECT INTUBATION TRAINER

The GlideScope Direct intubation trainer requires high-level disinfection prior to use. For more information about the risk assessment of AVL system components, see Table 5 on page 41.

IMPORTANT

Do not use metal or abrasive brushes, scrub pads, or rigid tools to clean the blade. The window that protects the camera and light can be scratched, permanently damaging the device.

This product is heat-sensitive, and exposing the components to temperatures in excess of 60°C (140°F) will cause damage to the electronics and void the device warranty.

PROCEDURE 1. CLEAN & DISINFECT THE GLIDESCOPE DIRECT

Table 9. Cleaning & Disinfection Methods for the GlideScope Direct

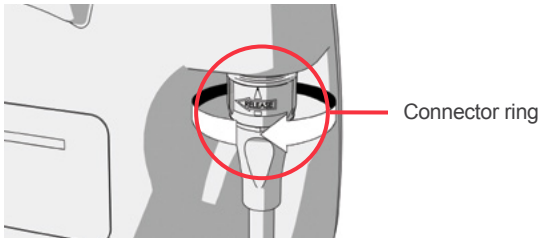
CHEMICAL	DISINFECTION LEVEL	CONDITIONS
Enzymatic debridement agent/detergent	Cleaner	As per chemical manufacturer's instructions
ASP® Cidex® OPA *	High	As per chemical manufacturer's instructions
Metrex® MetriCide® Plus 30 *	High	As per chemical manufacturer's instructions
Sultan® Healthcare Sporox® II *	High	As per chemical manufacturer's instructions
STERIS® S40™ or S20™ *	Sterilization	Standard cycles in the following processors: STERIS® SYSTEM 1® (outside U.S.) SYSTEM 1E® (in U.S.) SYSTEM 1 EXPRESS (outside U.S.) SYSTEM 1 PLUS (outside U.S.)
ASP® Hydrogen Peroxide Gas Plasma †	Sterilization	STERRAD® 100S (in U.S.), STERRAD® 100S short cycle (outside U.S.), STERRAD® NX standard cycle, or STERRAD® 100NX standard cycle

* *Tested for 500 compatibility cycles.*

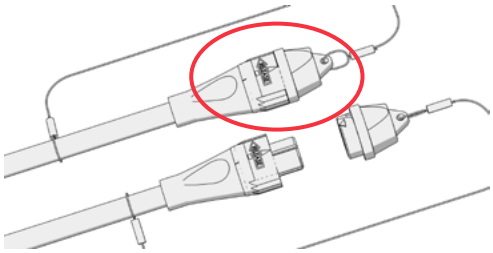
† *Tested for 100 compatibility cycles.*

CLEAN THE GLIDESCOPE DIRECT

1. Ensure the video monitor has been turned off.
2. Detach the video cable from the monitor by turning the connector ring in the direction of the arrow.



3. Place the protective cleaning cap over the connector. Ensure that the mark on the cap is aligned with the arrow on the cable.



4. Wash the GlideScope Direct manually, using a hospital-grade equipment detergent or an enzymatic debridement agent/detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device. For more information, see Table 9.
5. Rinse the GlideScope Direct in clean, running water.

   The blade can now be disinfected.

DISINFECT OR STERILIZE THE GLIDESCOPE DIRECT

1. Ensure the equipment is clean according to the previous steps.
2. Ensure the protective caps on the connectors are secure.
3. Prepare and condition the disinfection solution according to the solution manufacturer's instructions and the conditions stated in Table 9.
4. Disinfect the GlideScope Direct according to the conditions stated in Table 9. The exposure process and times vary depending on the solution and the component.
5. If applicable, rinse the blade according to the solution manufacturer's instructions.
6. Dry the blade by using a sterile cloth, hospital-grade clean air, or a low-temperature dryer.
7. Store the disinfected blade in a clean environment.

INSPECT THE GLIDESCOPE DIRECT

8. Examine the blade and integrated cable for any signs of damage. The metal blade should not have any signs of damage other than minor surface scratches as the result of use. If damage is present, do not use the component, and contact Verathon® Customer Care.

MAINTENANCE & SAFETY

INSPECTIONS

In addition to the user performing routine inspections before and after every use, periodic inspections should be performed to ensure safe and effective operation. It is recommended that an operator familiar with the instrument perform a full visual inspection of all components at least every three months. The inspector should check the system for the following:

- External damage to the equipment
- Damage to the power supply or adapter
- Damage to the connectors or cable insulation

Report any suspected defects to Verathon® Customer Care at:

Phone: 800.331.2313 (U.S. and Canada)
+1.425.867.1348 (International)

Email: customerservice@verathon.com

ELUTION COMPATIBILITY

For use with GlideScope AVL reusable blades, Verathon® has completed testing of compatibility with a 1% sodium dodecyl sulphate (SDS) solution with pH 11.0.

The SDS solution is commonly utilized in Europe as an eluting solution to collect residual protein samples from medical tools or devices that are cleaned after contacting patient tissue. The protein sample solution is then examined as a verification of the hospital cleaning process.

The testing concluded that 1% SDS solution with pH 11.0 is chemically compatible with the reusable blades and gives no adverse results when performing repeated 30-minute soaking for 100 cycles.

GLIDESCOPE VIDEO MONITOR BATTERY

Under normal operating conditions, the monitor battery will last 2–3 years; or approximately 500 charge/discharge cycles. For more information about the battery, see the Battery Specifications section on page 60.

The battery is not user-replaceable. In case of battery malfunction, do not attempt to replace the monitor battery. Any attempts to replace the battery by unauthorized service technicians may cause serious harm to the user and will void the warranty. Please contact your Verathon Customer Care Representative for more information on battery replacement.

SYSTEM SOFTWARE

Verathon may release software upgrades for the GlideScope Video Monitor. Software upgrades are supplied directly by Verathon or an authorized representative, and installation instructions are provided with the upgrade.

This manual documents the most current version of the GlideScope Video Monitor software. If your monitor does not function as described in this manual, or to determine if your software should be updated, contact Verathon Customer Care.

Do not perform any software upgrades from third-party vendors or attempt to modify the existing software. Doing so may damage the monitor and void the warranty.

DEVICE REPAIR

The GlideScope AVL system components are not user-serviceable. Verathon® does not make available any type of circuit diagrams, component parts lists, descriptions, or other information that would be required for repairing the device and related accessories. All service must be performed by a qualified technician.

If you have any questions, contact your local Verathon representative or Verathon Customer Care.

WARNING

No modification of this equipment is allowed.

WARNING

Electric shock hazard. Do not attempt to open the system components. This may cause serious injury to the operator or damage to the instrument and will void the warranty. Contact Verathon Customer Care for all servicing needs.

DEVICE DISPOSAL

Disposal of this device in accordance with WEEE requirements can be coordinated through your Verathon Service Center.

WARRANTY

Verathon® includes a one-year warranty when you buy a GlideScope AVL system. You may also purchase a Premium Customer Care℠ warranty that extends your warranty from the date of purchase.

ORIGINAL FIRST YEAR TOTAL CUSTOMER CARE WARRANTY

Verathon warrants the GlideScope AVL system against defects in material and workmanship. This warranty applies for one (1) year from the date of shipment from Verathon. This warranty applies only to the original purchaser of the GlideScope system.

If a customer's system requires service or repair, Verathon will, at its discretion, either repair or replace the customer's unit and provide a loaner unit within one (1) business day from the date of customer service notification. The customer agrees to send the defective unit to Verathon (cleaned and disinfected as appropriate) upon receipt of the loaner unit, and the customer agrees to return the loaner unit within two (2) business days of receipt of the repaired unit.

- This warranty provides coverage for damage from accidental drops or mishandling. It does not cover damage due to deliberate mishandling.
- This warranty does not apply if the product has been damaged due to, or as the result of, service or modification by anyone other than an authorized Verathon Service Center.
- This warranty does not apply if there is evidence of the equipment being exposed to temperatures in excess of 60°C (140°F).
- All exchanged parts become property of Verathon.

The product shall be used in accordance with the instructions contained in this manual. Consumable items (e.g., Stats) shall be used in conformance with Verathon product specifications. Consumable items are not covered under this warranty.

WHAT IS COVERED?

Warranty coverage is extended to the GlideScope AVL system:

- GlideScope Video Monitor
- GlideScope AVL video baton
- GlideScope AVL Reusable video laryngoscope

Additional reusable video laryngoscopes, video monitors, or video batons purchased either singularly or as a part of a system are warranted separately.

PREMIUM CUSTOMER CARE WARRANTY

The Premium Customer Care℠ warranty from Verathon® may be extended from the date of purchase.

DISCLAIMER OF ADDITIONAL WARRANTIES

There are no understandings, agreements, representations of warranties expressed or implied (including warranties of merchantability or fitness for a particular purpose) other than those set forth in this chapter. The contents of this manual do not constitute a warranty.

Some States disallow certain limitations on applied warranties. The purchaser, user, and patient should consult State law if there is a question regarding this disclaimer. The information, descriptions, recommendations, and safety notations in this manual are based upon Verathon experience and judgment with GlideScope systems as of this manual's effective date. The contents of this manual should not be considered to be all-inclusive, or to cover all contingencies.

PRODUCT SPECIFICATIONS

SYSTEM SPECIFICATIONS

GENERAL SPECIFICATIONS		
Classification	Electrical Class II, Applied Part BF	
Line voltage:	Range: 100–240 VAC, 50 and 60 Hz. Connect to a medical-grade power supply	
DC power supply:	12 V DC, 2.5 A max	
Fuse:	Internal 2.5 A Hold / 5 A Trip, 15 V max	
Ingress protection against water:	Video monitor	IP54
	Reusable blade	IPX8
	Video baton	IPX8
Expected product life:	Reusable blade	2 years or 2000 use cycles
	Single-use Stat	1 use
OPERATING AND STORAGE SPECIFICATIONS		
Operating Specifications		
Temperature:	10 to 40°C (50 to 104°F)	
Relative humidity:	0 to 95%	
Atmospheric pressure:	540–1060 hPa	
Shipping and Storage Conditions		
Temperature:	-20 to 45°C (-4 to 113°F)	
Relative humidity:	0 to 95%	
Atmospheric pressure:	440–1060 hPa	

COMPONENT SPECIFICATIONS

GENERAL COMPONENTS

SPECIFICATIONS	COMPONENT
GlideScope Video Monitor TFT Color, VGA 640 x 480 Monitor: 6.4 in Height: 183.3 mm Width: 223 mm Depth: 79 mm Weight : 1.1 kg	
GlideRite® Rigid Stylet Handle length: 82 mm Handle width: 16 mm Stylet rod length: 266 mm Distal tip diameter: 5 mm	
IV Pole Mount Weight: 0.9 kg Arm length: 27 cm Width: 6.2 cm	
Mobile Stand Base height : 12.5 cm Base weight: 2.5 kg Base diameter: 61 cm Pole height range: 75–119 cm Pole weight: 0.7 kg	

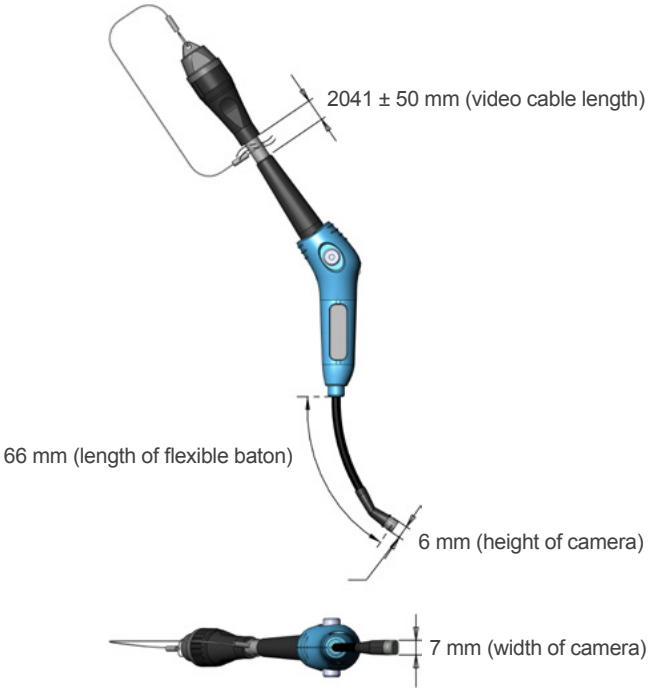
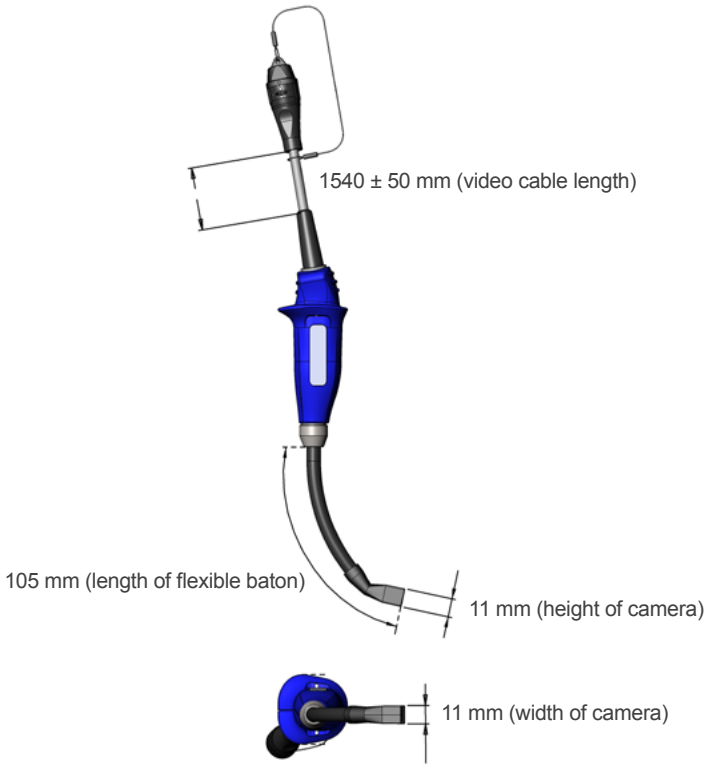
BATTERY SPECIFICATIONS

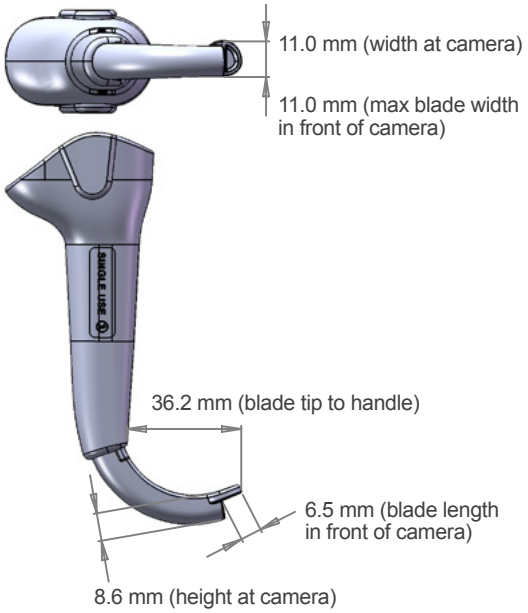
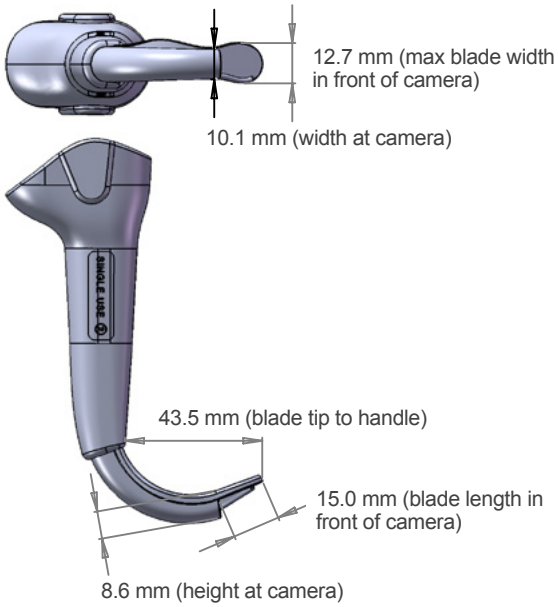
Table 10. Battery Specifications

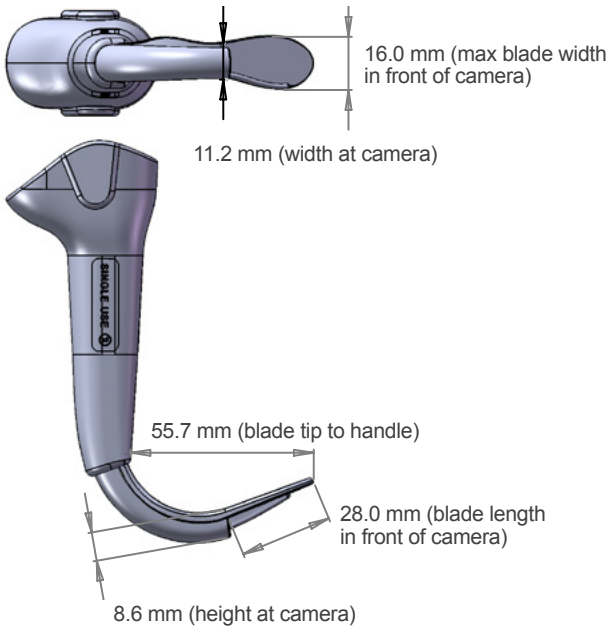
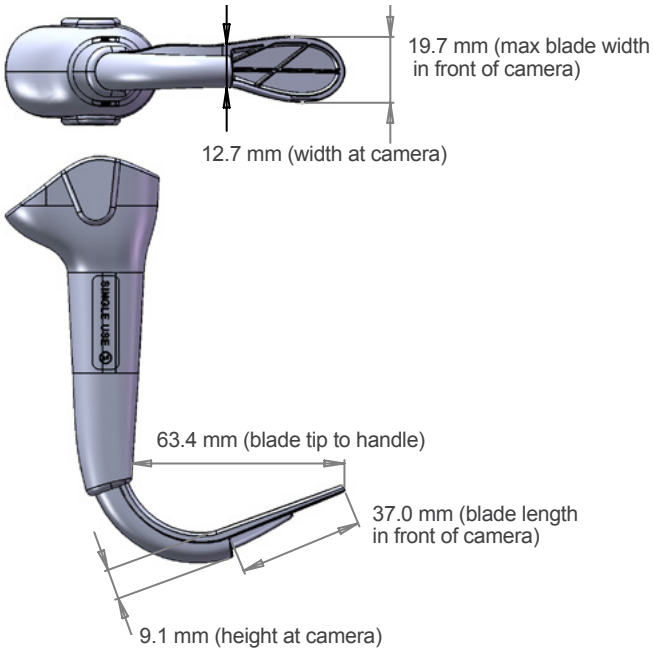
CONDITION	DESCRIPTION
Battery type	Lithium-ion
Battery life	Under normal operating conditions, a fully charged battery lasts approximately 90 minutes
Charging time	Charging time off line will take no more than 6 hours from an empty battery to a full charge
Rated capacity	2150 mAh
Nominal voltage	7.2 V
Max charging voltage	8.4 V
Nominal weight	90 g
Width	0.9 in (23 mm)
Length	5.4 in (391 mm)
Thickness	0.9 in (23 mm)

SINGLE USE SYSTEM

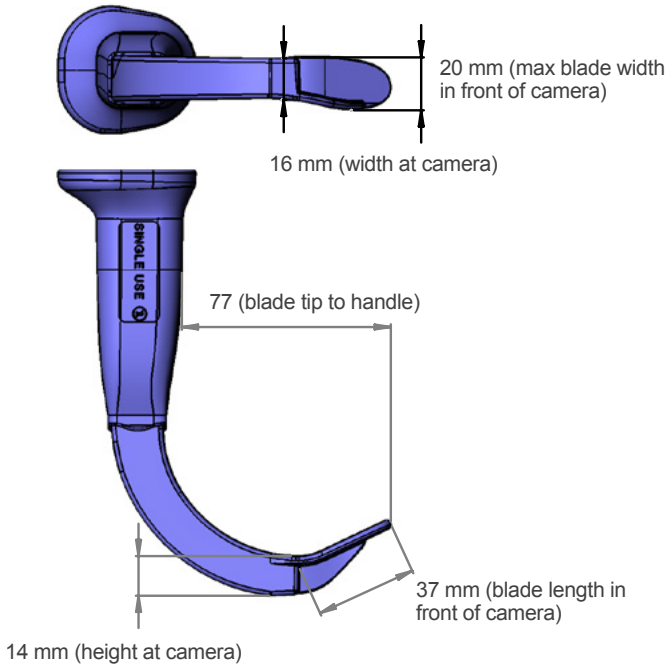
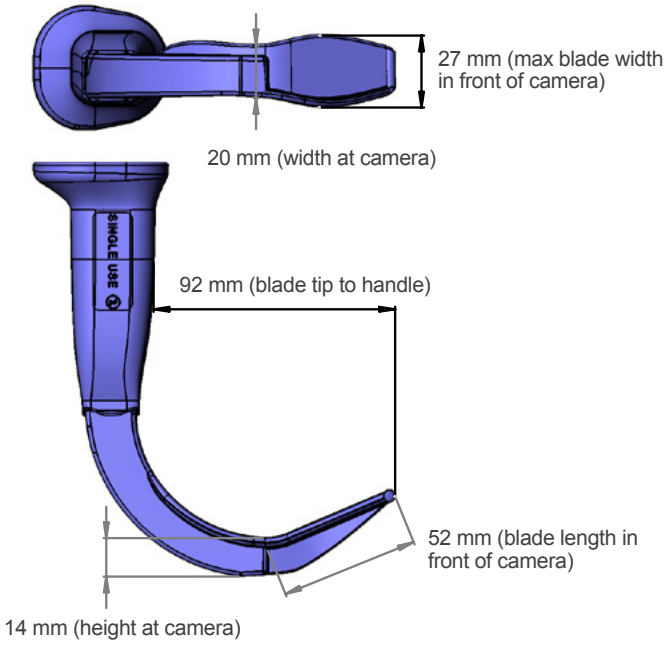
Table 11. Single Use System Component Specifications

SPECIFICATIONS	COMPONENT
AVL Video Baton 1-2 Length of flexible portion of baton: 66 mm Height at camera: 6 mm Width at camera: 7 mm Video cable length: 2041 ± 50 mm	
AVL Video Baton 3-4 Length of flexible portion of baton: 105 mm Height at camera: 11 mm Width at camera: 11 mm Video cable length: 1540 ± 50 mm	

SPECIFICATIONS	COMPONENT
GVL® 0 Stat Blade tip to handle: 36.2 mm Height at camera: 8.6 mm Width at camera: 11.0 mm Blade length in front of camera: 6.5 mm Max blade width in front of camera: 11.0 mm 	
GVL 1 Stat Blade tip to handle: 43.5 mm Height at camera: 8.6 mm Width at camera: 10.1 mm Blade length in front of camera: 15.0 mm Max blade width in front of camera: 12.7 mm 	

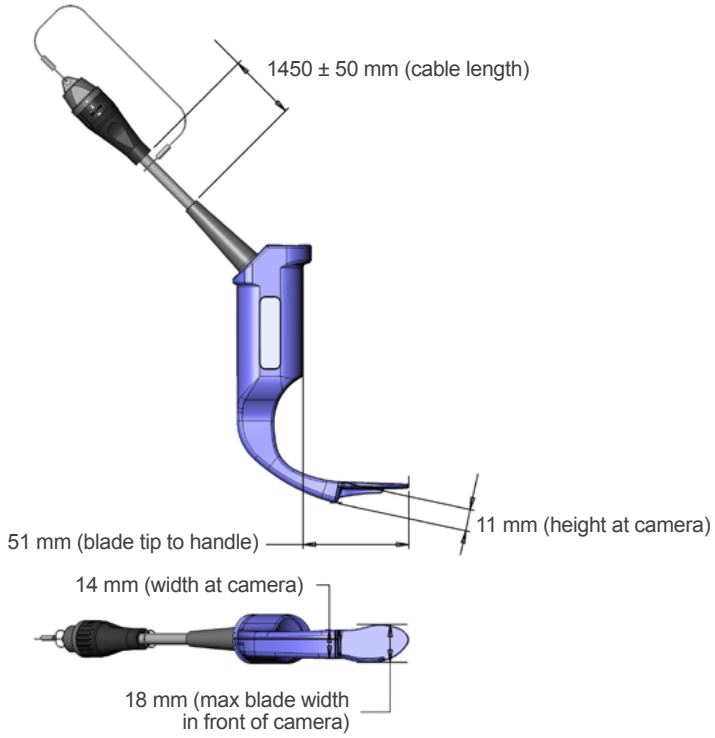
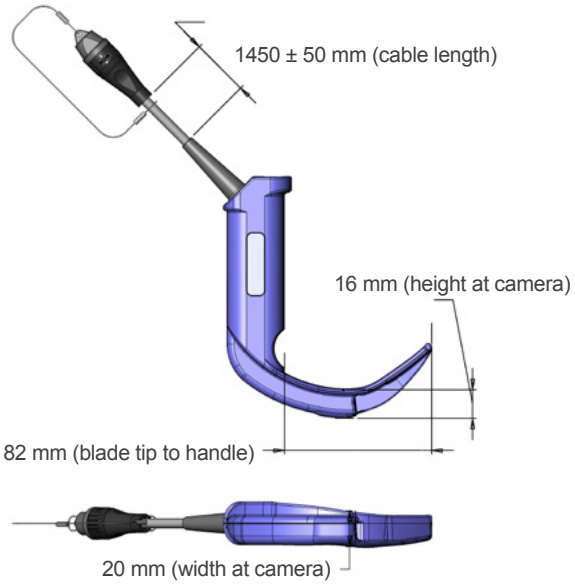
SPECIFICATIONS	COMPONENT
GVL® 2 Stat Blade tip to handle: 55.7 mm Height at camera: 8.6 mm Width at camera: 11.2 mm Blade length in front of camera: 28.0 mm Max blade width in front of camera: 16.0 mm 	
GVL 2.5 Stat Blade tip to handle: 63.4 mm Height at camera: 9.1 mm Width at camera: 12.7 mm Blade length in front of camera: 37.0 mm Max blade width in front of camera: 19.7 mm 	

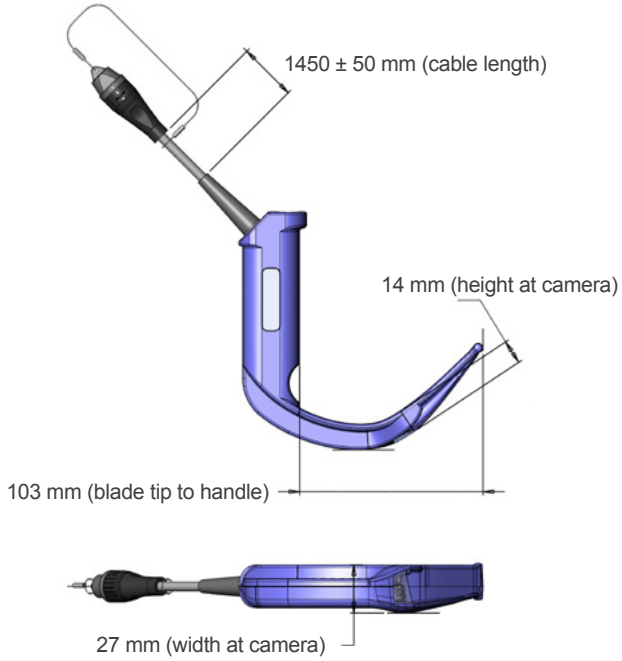
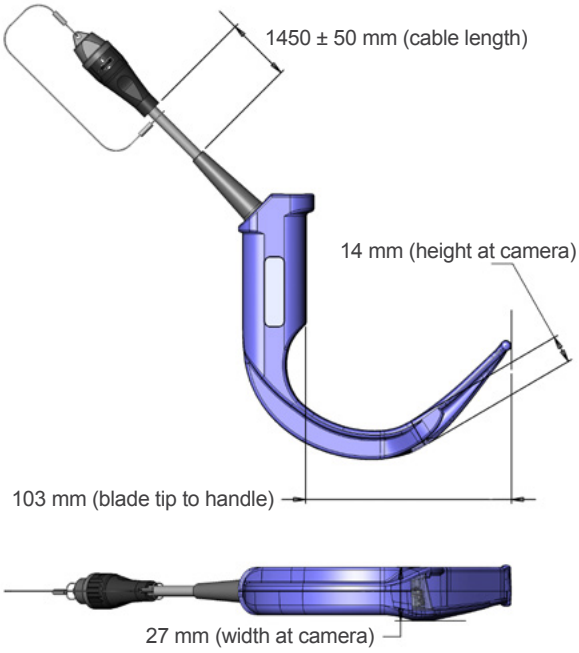
SINGLE USE

SPECIFICATIONS	COMPONENT
GVL® 3 Stat Blade tip to handle: 77 mm Height at camera: 14 mm Width at camera: 16 mm Blade length in front of camera: 37 mm Max blade width in front of camera: 20 mm 	
GVL 4 Stat Blade tip to handle: 92 mm Height at camera: 14 mm Width at camera: 20 mm Blade length in front of camera: 52 mm Max blade width in front of camera: 27 mm 	

REUSABLE SYSTEM

Table 12. Reusable System Component Specifications

SPECIFICATIONS	COMPONENT
GVL® 2 Cable length: 1450 ± 50 mm Height at camera: 11 mm Width at camera: 14 mm Blade tip to handle: 51 mm Max blade width in front of camera: 18 mm	
GVL 3 Cable length: 1450 ± 50 mm Height at camera: 16 mm Width at camera: 20 mm Blade tip to handle: 82 mm Max blade width in front of camera: NA	

SPECIFICATIONS	COMPONENT
GVL® 4 Cable length: 1450 ± 50 mm Height at camera: 14 mm Width at camera: 27 mm Blade tip to handle: 103 mm Max blade width in front of camera: NA	
GVL 5 Cable length: 1450 ± 50 mm Height at camera: 14 mm Width at camera: 27 mm Blade tip to handle: 103 mm Max blade width in front of camera: NA	

DIRECT INTUBATION TRAINER

PRODUCT SPECIFICATIONS

SPECIFICATIONS	COMPONENT
GlideScope Direct Intubation Trainer Cable length: 1942 ± 100 mm Height at camera: 15 mm Width at camera: 23 mm Blade tip to handle: 119 mm Max blade width in front of camera: 23 mm	

ELECTROMAGNETIC COMPATIBILITY

GlideScope AVL system is designed to be in compliance with IEC 60601-1-2:2007, which contains electromagnetic compatibility (EMC) requirements for medical electrical equipment. The limits for emissions and immunity specified in this standard are designed to provide reasonable protection against harmful interference in a typical medical installation.

The GlideScope AVL system complies with the applicable essential performance requirements specified in IEC 60601-1 and IEC 60601-2-18. Results of immunity testing show that the essential performance of the system is not affected under the test conditions described in the following tables. For more information about the essential performance of the GlideScope AVL system, see Essential Performance on page 1.

ELECTROMAGNETIC EMISSIONS

Table 13. Guidance and Manufacturer's Declaration—Electromagnetic Emissions

The GlideScope AVL system is intended for use in the electromagnetic environment specified below. The customer or the user of the GlideScope AVL system should assure that it is used in such an environment.

EMISSIONS TEST	COMPLIANCE	ELECTROMAGNETIC ENVIRONMENT – GUIDANCE
RF emissions CISPR 11	Group 1	The GlideScope AVL system uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The GlideScope AVL system is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

ELECTROMAGNETIC IMMUNITY

Table 14. Guidance and Manufacturer's Declaration—Electromagnetic Immunity

The GlideScope AVL system is intended for use in the electromagnetic environment specified below. The customer or the user of the GlideScope AVL system should assure that it is used in such an environment.

IMMUNITY TESTS	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT – GUIDANCE
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	In compliance	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	In compliance	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	In compliance	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 s	In compliance	Mains power quality should be that of a typical commercial or hospital environment. If the user of the GlideScope AVL system requires continued operation during power mains interruptions, it is recommended that the GlideScope AVL system be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	In compliance	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the GlideScope AVL system, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance d (m)** $d=1.2\sqrt{P}$

Table 14. Guidance and Manufacturer's Declaration—Electromagnetic Immunity

The GlideScope AVL system is intended for use in the electromagnetic environment specified below. The customer or the user of the GlideScope AVL system should assure that it is used in such an environment.

IMMUNITY TESTS	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT – GUIDANCE
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d=1.2\sqrt{P}$ 80 MHz to 800 MHz $d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol:

Note: U_T is the AC mains voltage prior to application of the test level.

At 80 MHz and 800 MHz, the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the GlideScope AVL system is used exceeds the applicable RF compliance level above, the GlideScope AVL system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the GlideScope AVL system.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

RECOMMENDED SEPARATION DISTANCES

Table 15. Recommended Separation Distances between Portable and Mobile RF Communications Equipment and the GlideScope AVL System

The GlideScope AVL system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the GlideScope AVL system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the GlideScope AVL system as recommended below, according to the maximum output power of the communications equipment.

RATED MAXIMUM OUTPUT POWER OF TRANSMITTER (W)	SEPARATION DISTANCE ACCORDING TO FREQUENCY OF TRANSMITTER (m)		
	150 kHz to 80 MHz $d=1.2\sqrt{P}$	**80 MHz to 800 MHz** $d=1.2\sqrt{P}$	**800 MHz to 2.5 GHz** $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

ACCESSORY CONFORMANCE TO STANDARDS

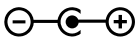
To maintain electromagnetic interference (EMI) within certified limits, the system must be used with the cables, components, and accessories specified or supplied by Verathon®. For additional information, see the System Parts & Accessories and Component Specifications sections. The use of accessories or cables other than those specified or supplied may result in increased emissions or decreased immunity of the system.

Table 16. EMC Standards for Accessories

ACCESSORY	LENGTH
AC power cord	4.5 m (15 ft)
DC medical power adapter	—
HDMI-to-DVI cable	6 m (20 ft)

SYMBOL DIRECTORY

SYMBOL	MEANING
Warnings & Cautions	
	Warning or Caution—Consult accompanying documents. Read instructions before connecting or operating.
	Risk of electric shock
	Flammable material
	Non-ionizing, electromagnetic radiation
Product Use & Specifications	
	Refer to the operations & maintenance manual
	Refer to the operations & maintenance manual
	Manufacturer
	Use-by date
	Catalogue (part) number
	Serial number
	Batch code
	Upper temperature limit
	Temperature limitation
	Humidity limitation
	Atmospheric pressure limitation

SYMBOL	MEANING
	USB
	Statement of prescription
	Sterilized through irradiation
	Non sterile
	Reuse is not allowed
Shipping	
	Fragile item, handle carefully
	Keep dry
	Handle with care
	This way up
	Quantity per box
	Do not use if package is damaged
Electrical & Power	
	Class II equipment
	Type BF applied part
	Energy Efficiency Level IV
	Connector polarity mark—positive
	Direct current
	Alternating current

SYMBOL	MEANING
Standards & Certifications	
CE	CE—Marked in accordance with the Medical Device Directive (MDD)
C SP US	CSA—Canadian Standards Association mark of certification to applicable standards for electromedical equipment
EC REP	EC REP—Authorized Representative in the European Community
FC	FCC—Tested to Federal Communications Commission requirements
TÜV SÜD	TUV—Safety approval mark for components or subassemblies
c UL us	UL— Underwriters Laboratories Recognized Component certification mark in Canada and the United States
	WEEE—Subject to waste electrical and electronic equipment regulations

GLOSSARY

TERM	DEFINITION
A	Ampere
AC	Alternating current
C	Celsius
CFR	Code of Federal Regulations (U.S.)
CISPR	International Special Committee on Radio Interference
cm	Centimeter
DC	Direct current
DL	Direct laryngoscopy
ED	Emergency Department
EMI	Electromagnetic interference
ESD	Electrostatic discharge
Essential performance	The system performance necessary to achieve freedom from unacceptable risk
ETT	Endotracheal tube
F	Fahrenheit
g	Gram
GHz	Gigahertz
HDMI	High-definition multimedia interface
hPa	Hectopascal
Hz	Hertz
ICU	Intensive Care Unit
IEC	International Electrotechnical Commission
in	Inch
IPA	Isopropyl alcohol
ISM	Industrial, scientific, and medical
kHz	Kilohertz
kV	Kilovolt
m	Meter
mAh	Milliampere-hour
MHz	Megahertz
mm	Millimeter
NICU	Neonatal Intensive Care Unit
OR	Operating Room
OSHA	Occupational Safety and Health Administration (federal agency in U.S.)
ppm	Parts per million
Pure water	Water that is suitable for high-level disinfection according to local regulations and your medical facility

TERM	DEFINITION
RF	Radio frequency
RH	Relative humidity
V	Volt
Vrms	Voltage root mean squared
W	Watt
WEEE	Waste electrical and electronic equipment

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